Ideas on Swaping a Weber Carb on EA82´s

By Loyale 2.7 Turbo, April 20, 2007 in Engine

Carburetor · Adapter Plate · PCV · Swap · Loyale 2.7 Turbo · Honduras · JesZeK · WEBER · EA81 · EA82

Loyale 2.7 Turbo

The Mighty "BumbleBeast"

Members

1792

7629 posts

Roatán, Honduras.

Posted April 20, 2007 (edited)

Report post

Ideas on Swapping a Weber Carburetor on a Subaru EA82 Engine

In this Writeup you'll find

The Basics:

► A complete **installation** Guide.

► Solving problems **untold** by the Manuals.

► **Jetting** for the EA82 to be used between Sea Level and ~ 6500 Feet (2000 Mts) Altitude.

► **Proper** routing for the **P**.**C**.**V**. (Positive Crankcase Ventilation) System's Hoses.

The Advanced:

► A much **better Adapter Plate** than the one designed for the EA82.

► What to do with the **ASV**, **EGR**, etc...

The Optional:

► Installing an **Oil Catch Can** on the P.C.V. System.

► Distributor's **Advance** Modifications.

► intake **Manifold** Modifications.

► **ignition** Coil upgrade.

► **Exhaust** Piping Modifications.

► ...and Much **More**! *Pay attention to the "Important Notes"*

Introduction:

On early 2006 I Swapped a progressive **Weber 32/36** Carburetor on my 1985 Subaru White Wagon (which isn't white anymore),, that swap job required **more** things to be done than what the Manual included with the kit, stated; so I'll explain here everything that is needed to successfully do the Swap, and I will add Photos describing all the problems I faced and the ideas I had to solve them; Hoping that this writeup will Help you to Swap a Weber carburetor on an **EA82** Subaru engine, flawlessly.

Many of the Ideas that I explain here, are also aplicable to the older Subaru **EA81** engine as well, basically talking,

almost everything except the adapter plate.

REMEMBER: Use this Ideas at *your Own* Risk*!*

First of All: the Redline-Weber **K-731** Kit, which is designed to install a Weber carburetor on the Subaru **EA82** carbureted Engines, came with the following items:

A Progressive **Weber 32/36** Carburetor, an Air Filter Box plus its element, a Throttle Cable Bracket, some Gaskets and a **two plate Adapter**, which consists on one **Lower** plate designed to be mounted directly to the intake manifold, and one **Upper** plate, designed to be mounted over said Lower plate; this last one receives the studs which are intended to Hold the Weber Carburetor in place; and needs the Gaskets inbetween ... Also this kit, comes with a bag with different screws and the studs.

All the Weber carburetors that are Sold in the USA, comes with a sticker with a Statement that says something like: *"For Racing -or Offroading- Purposes Only"* due to Smog, pollution and other Legal Regulations which varies from State to State, so They're Not *"Street Legal"* on certain areas and that statement shall be placed on all brand new Weber Carburetors, due to said Legal Regulations; so you must be sure that you are legally allowed to do this Swap on the Area where you Live, **prior** to start.

Determining which type of Weber carburetor you do Need

There are many different Weber Carburetors' Designs on the market, however the two models used more often on Subaru Engines, are those who features **two Barrels**. (Forget about using a single barrel carburetor on these Subaru engines, simply it doesn't worth the effort.)

Basically talking, there are two variations of the two barrel design on Weber Carburetors, that works good with these Subaru engines, one design is known as the **Progressive** Models (being the most popular, the **32/36** DEGV) and the other design is known as the **Synchronous** Models (being the most popular, the **38/38** DGAS).

Each of the two barrels, has its own butterfly that opens / closes according to the Throttle position; if you want to be Sure which model you do have, just take a look at the Linkage that opens the butterflies between both Barrels, it is located behind the throttle plate: If Both Butterflies on both barrels, opens at the same time, always when the throttle position moves, it is a **Synchronous** Weber (like the **38/38** DGAS); **But** if one barrel's butterfly starts to open only after the other one have already reached the half way open, then it is a **Progressive** Weber. (like the 32/36 DEGV).

The **Synchronous** Webers, like the 38/38, are used mainly for Racing purposes due to the Higher Fuel usage (Both identical barrels works / opens at the Same Time, all the time), and thus means that if you use a Car with such kind of carburetor as daily driver / commuter, it will become a Gas guzzler.

The **Progressive** Webers, like the 32/36, are used for all mixed driving needs, as you commute using only one barrel which is known as the Primary -**Low**- Stage (usually with a Smaller Jetting); and the other barrel, which is known as the Secondary -**High**- Stage (usually with a Bigger Jetting) is only in use during *deep accelerations*, so you have the Best **Balance** between Power and Fuel Consumption.

I chose a **Progressive 32/36 Weber** carburetor, which is, in my own humble opinion, the best option in Carburetor that you can choose for this retrofitting job; however this writeup is still applicable, if you have a synchronous Weber.

That been said, lets Begin to explain the Problems I Faced during the Swap Job, and How I Solved them.

~► **First Problem**: The Lousy Adapter Plate.

As I stated above, the **K-731** kit that I obtained from **Redline Weber**, came with a Lousy Adapter, conformed by two separate Plates, **Lower** plate and **Upper** plate, each one has its own **flaws** ... 🤔 ...

The **Lower Plate** needs four screws to be Held properly in place, directly bolted to the intake manifold; each screw has a cone shaped, flat top head, whose angle is approximately 60° and is designed to fit on the also cone-shaped

seats of the plate's openings; the matching angles holds that plate in place. Then comes the **Upper plate**, which goes directly bolted to the Lower plate; finally, the Weber carburetor mounts on that Upper Plate.

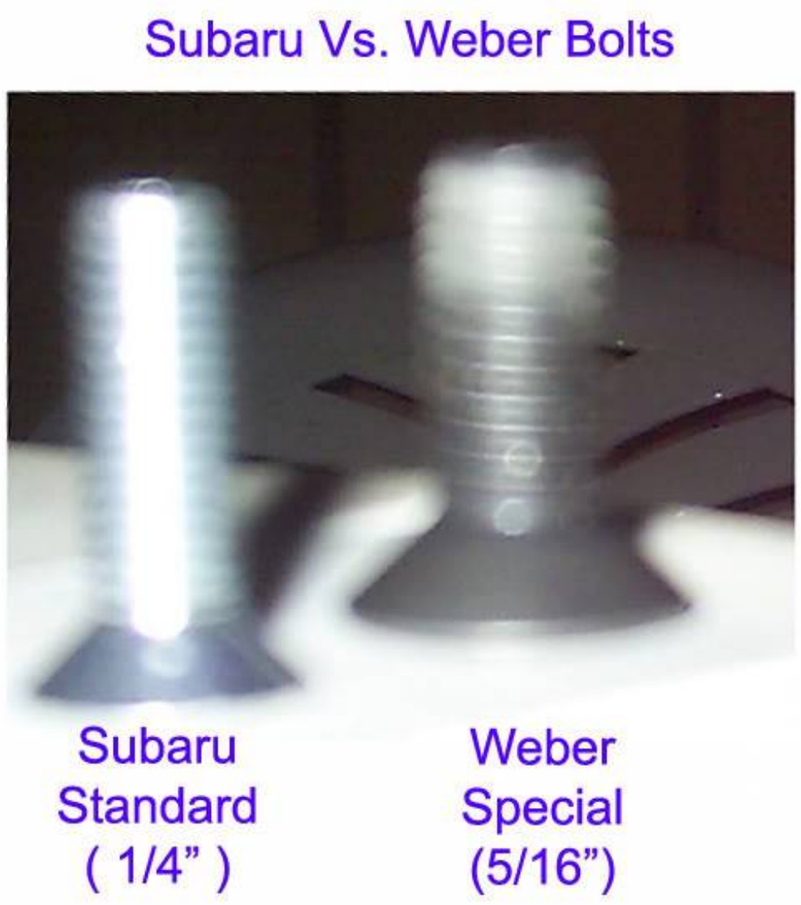
The **Flaws** of the **two-Plate** adapter:

While the **weak** thin walls on the threaded openings for the Studs, is the main flaw on the **Upper** plate, (Look for further information and photos regarding the **Upper plate**, on the following post of this writeup); the way to bolt the **Lower** plate to the intake, is another flaw, let me explain:

The Redline-Weber **K-731** kit came with **two** different sets of **screws** provided to bolt the **Lower Plate** of the adapter, to the intake manifold; one set of four silver screws, comes with the appropriate size and pitch for the Subaru EA82 intake manifold's threads (**6 mm ~ 1/4"**), but the heads of those thin screws are very **small**, around the half size of the cone shaped seats on the lower adapter plate.

The other set of four black Screws provided, are thicker (**8 mm ~ 5/16"**) and their heads fills completely the cone shaped seats on the lower adapter plate; but their thread and pitch are **big** and do not fit on the intake manifold's threads.

Here you can see a comparison photo, of one of the silver **6** mm screws (I call it "**Subaru Standard**" screw) provided, next to one of the black **8** mm screws (I call it "**Weber Special**" screw) provided, for the **same** Lower plate:



(sorry for my Cheapo Cellphone's camera photo)

It is **impossible** to bolt in a "***safe***" way, the Lower plate to the intake Manifold using the thinner **6** mm screws provided; but I bet that they included both sets, in order to let the unexperienced or Lazy mechanics / owners, to swap the carb fast and easy.

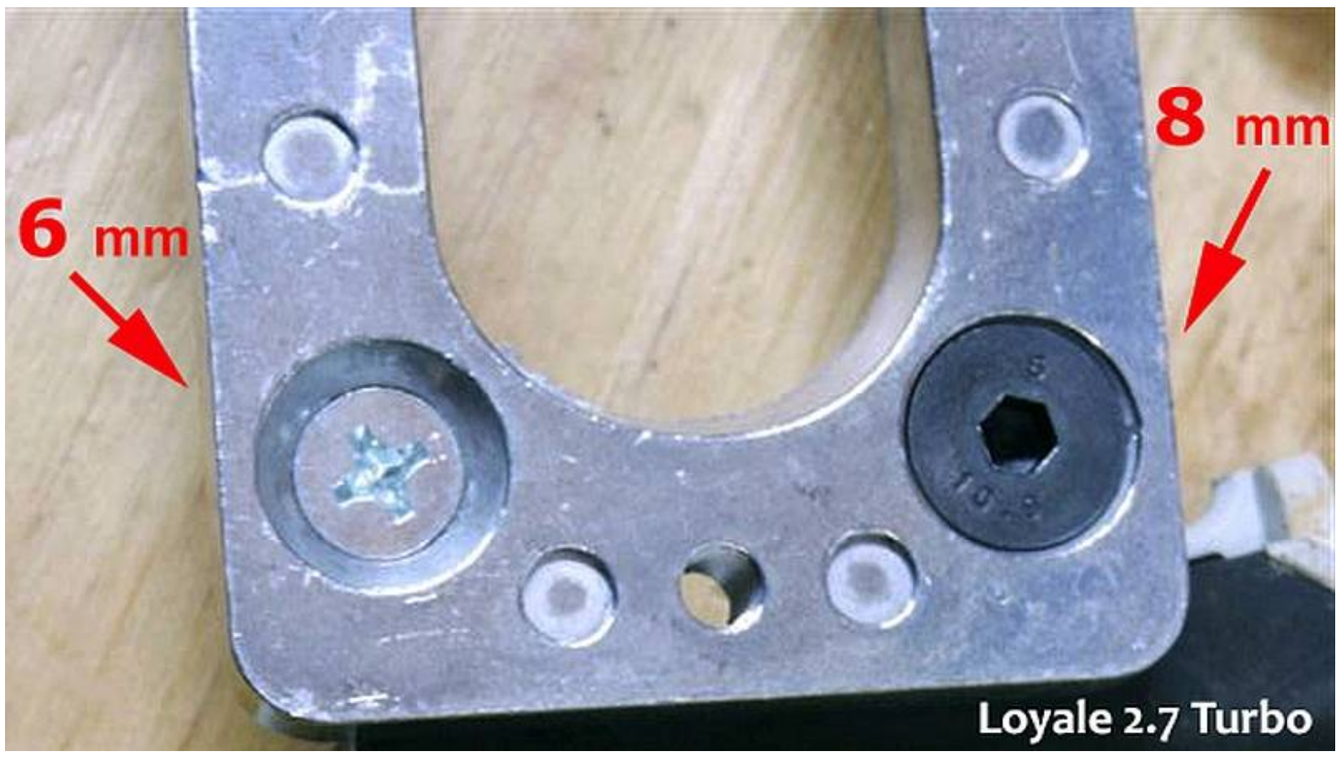
Those tiny silver screws will make the first plate to get Loose, developing vacuum leaks sooner or later, because their small size, makes the screws to have enough room inside the plate's opening, to move and slowly unscrew, from the engine's inherent vibrations; it's only a matter of time. Also the tiny silver screws only covers **half** of the seat, on the openings of the lower plate, making a weak union.

I already faced a vacuum leak: I was unexperienced when I did my first Weber swap, years ago, and I used the tiny silver screws as they matched the threaded openings on the intake manifold... it developed a Vacuum Leak between the intake and the lower plate, in less than a couple of months, despite that it was bolted **tight**, using a shellac smeared gasket.

After that vacuum leak, I removed the intake manifold to check the install, and then I understood the reason why they put a second set of screws by seeing how loose the Lower plate became with the tiny silver screws... I decided to use the Bigger diameter black Screws, instead.

In the Photo Below, you can see how the Heads of the silver **6** mm (**~1/4"**) screws, doesn't fit properly on the cone shaped seats of the lower plate adaptor; they only covers the half from the cone seat and their heads doesn't fill completely the space of the opening in that plate.

Next to it, you can see how the Heads of the black **8** mm (~**5/16**") screws, really fits perfectly there, they sits on the whole cone shaped base, while filling completely the opening, giving a much safer **flush** mount, which prevents the screws from getting loose with time and vibrations, as they doesn't have space for moving, because the Upper plate will be placed over them.



So, some modifying job to the intake manifold is required for sure, if you want reliabilty: to drill and tap it, **re-threading** the intake manifold's threads to match the size of the **bigger** black screws provided, in order to use them to bolt the Lower plate **properly**, and firmly in place.

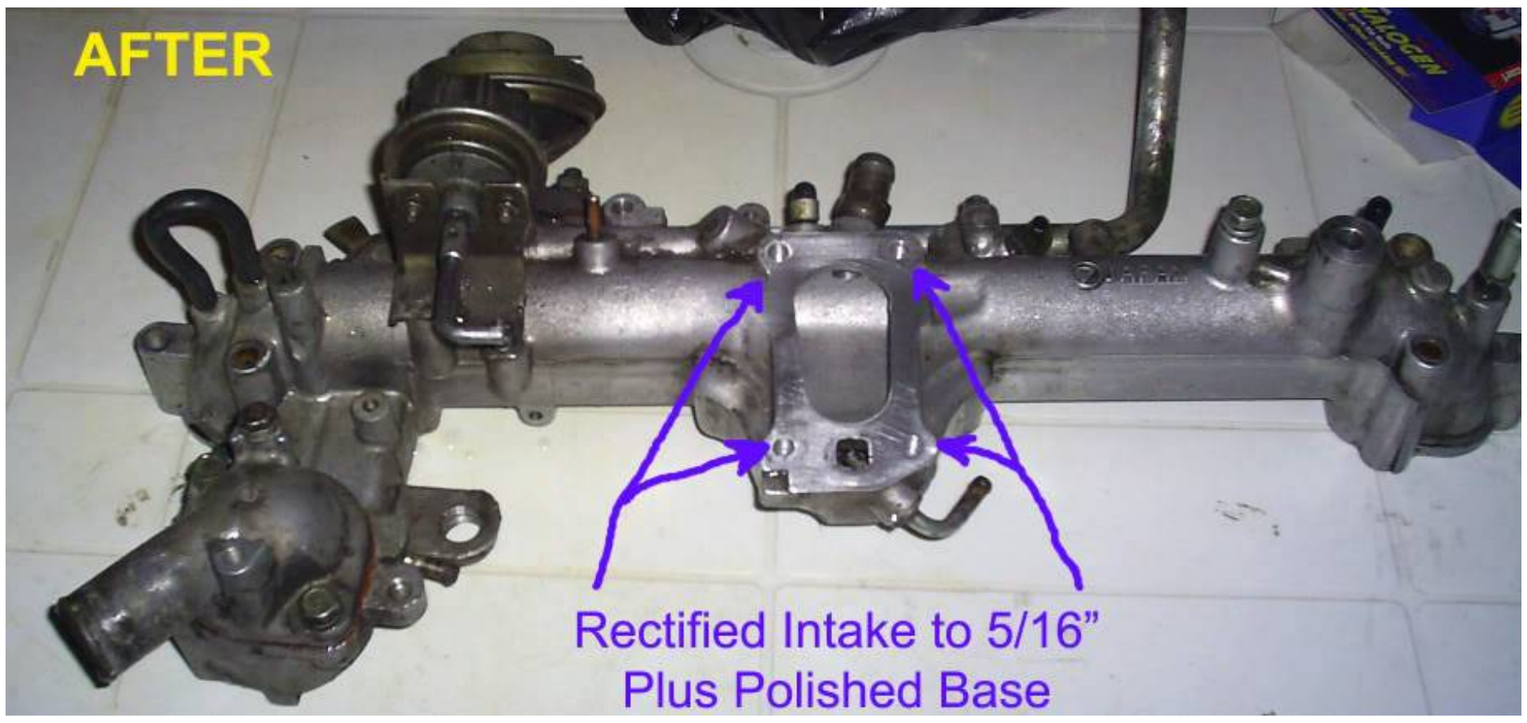
To make those Bigger diameter black screws to fit, You will need to Drill and tap new Bigger Threads to the intake manifold, but Be **Careful** when doing that: The intake manifold is also a **coolant crossover**, so you must take the proper depth measurements to avoid drilling onto a water passage. I Kindly Suggest you to remove the whole intake manifold from the Engine, prior to do the rethreading.

Here you can see how the **intake Manifold** originally was, right after removing the old Craptachi carb and gasket, just before removing it from the Engine:

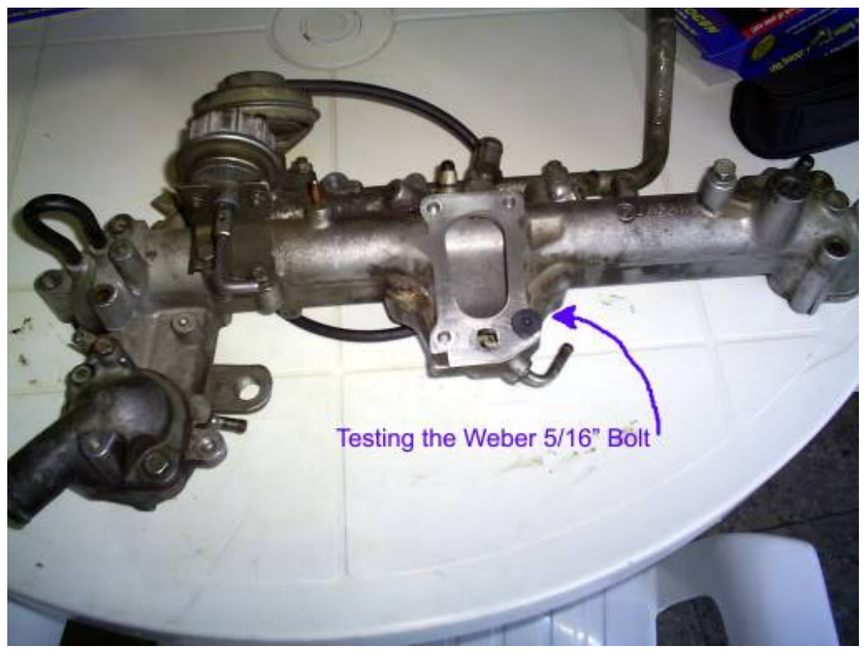
I took off the whole intake manifold to Drill the New Oversized Threads

From **6** mm (~ **1/4**") to about **8** mm (~ **5/16**")

Also I Sent the intake manifold to a Machine shop, to polish the flatness of the Carb's base:



Here, you can see how the **Bigger** black screws Now fits perfectly there:



Then, I Washed clean the intake manifold using Household Detergents, to remove any debris

Important note: I kindly suggest you, that the inbetween gaskets should be placed Smeared (the two faces) with a thin layer of **Shellac**, because shellac is Coolant / Oil \ Gasoline Resistant (more info on Shellac ~►**Here**) other gasket makers will *fail* in that place; the idea is to avoid any kind of Vacuum leaks.

~► **Second Problem**: To Seal the (Now Unused) Water Passage for the Old Craptachi Carb.

If this procedure is not done right, the cooling system will spill coolant on the intake manifold, right to the carb's base opening, so **be Careful**!

My first solution was to place the Gasket completely smeared with Shellac over that water opening, and also I cut in half the tiny Hose which supplies coolant for that Passage, and cap closed both ends of said hose, using screws and clamps... That lazy solution worked fine for five years, but you must consider that there is still a coolant **flow** inside the

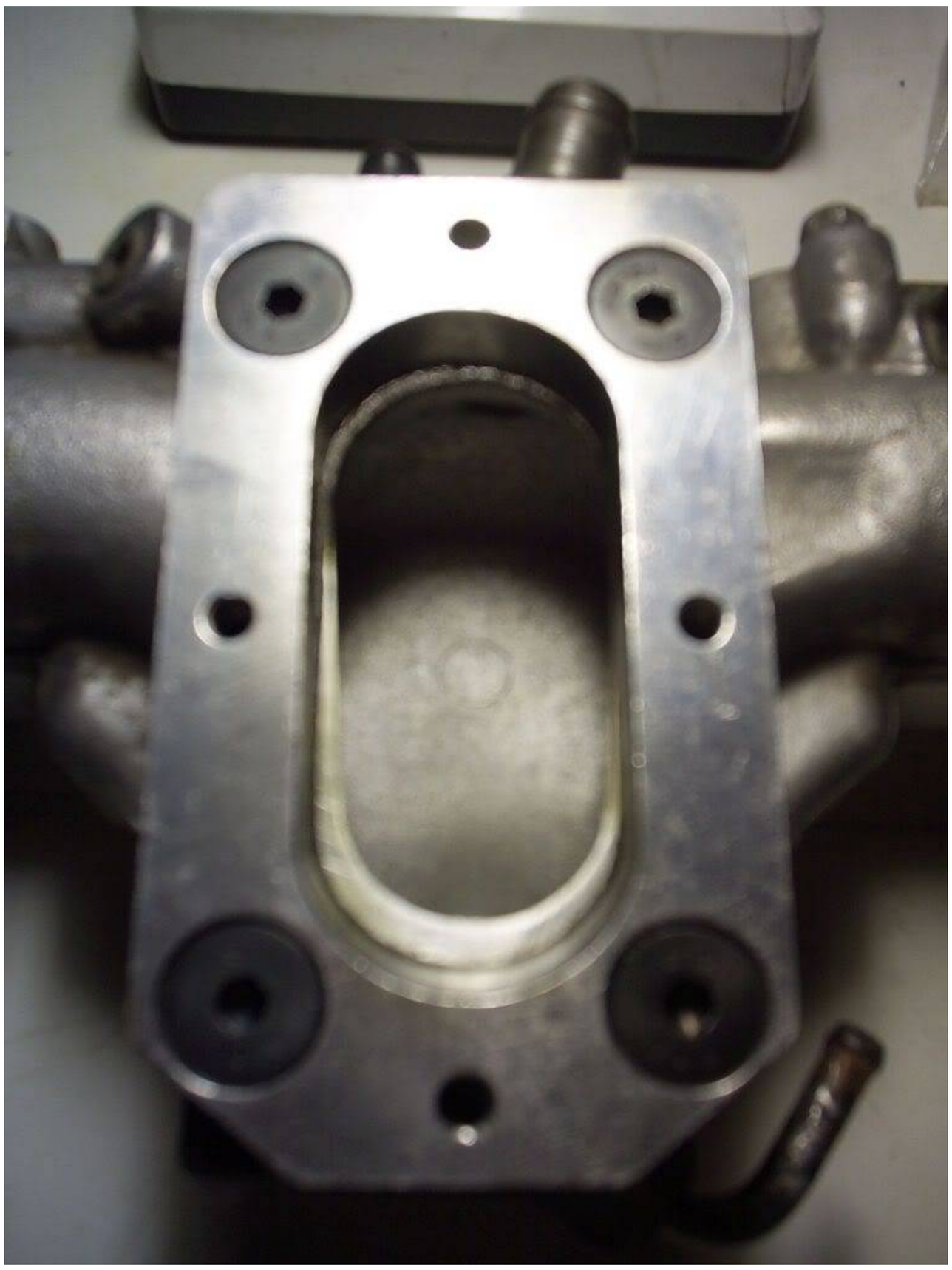
water crossover of the intake manifold; so there still will be coolant flowing on that Area, even without said hose.

You might use Cold Welding Compound such like the 4 minutes "**JB Weld**" to fill close that opening ... as I wrote, I ran my subie for years with only a Shellac smeared gasket and a removed hose without problems, but that setup was about to Fail after five years. Continue reading, in further posts of this writeup I will show you another Idea which is a definitive and permanent solution for this problem.

After placing the Gasket, smeared with Shellac on both sides,

inbetween the intake and the first plate, I bolted it there:

(Notice the Bigger Screws and how their Heads fills the Plate's openings)



Then, the Upper plate went over that first one,

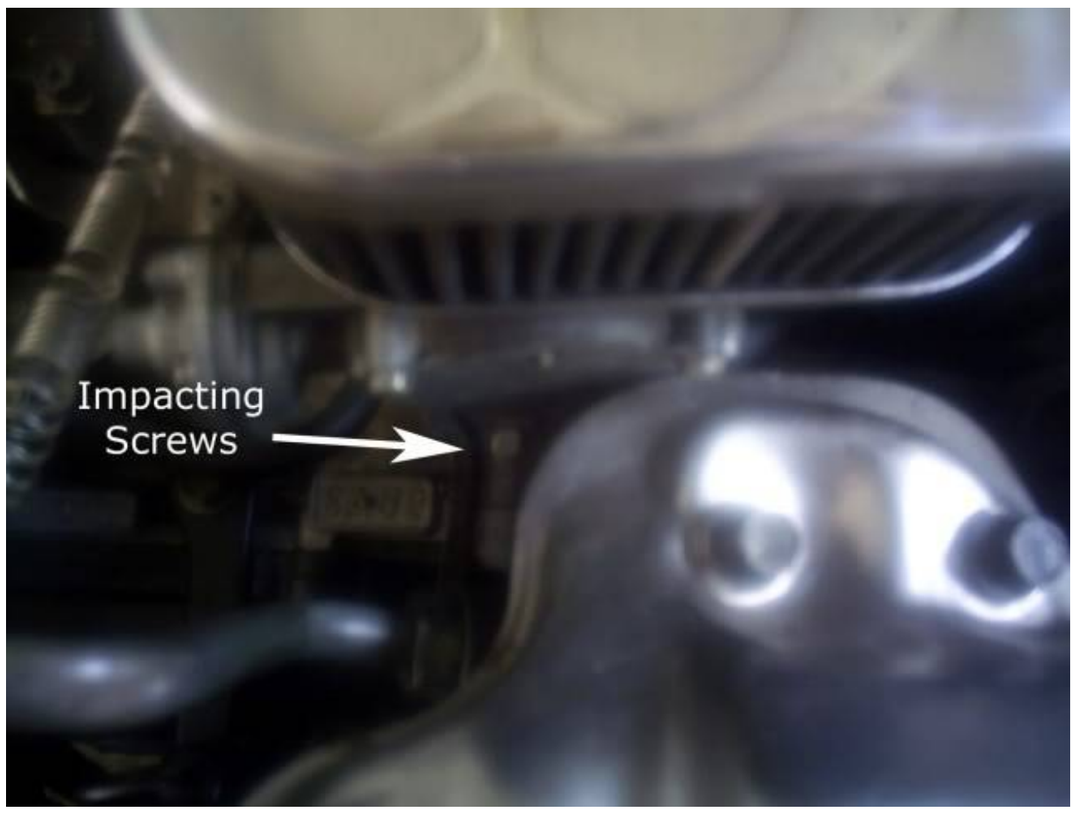
Also with a gasket smeared with Shellac on both sides, inbetween:

And Then you can place the **Weber** Carburetor.

~► **Third Problem**: Power Steering Equiped Models.

If your EA82 engined Subaru, has a **Power Steering Pump**, the Choke's Spring mechanism on the Weber Carb, will hit the Power Steering Pump's reservoir ... 😟 ... and even removing the Choke's Spring, the base for the said spring, impacts the bolt's head at the back of the power steering pump.

(Here, the Choke spring was already **Removed** from the Weber Carburetor)



At the Caribbean Tropics of Honduras, we don't need the choke too much, so...

► My **first** solution was to Remove the Choke's Spring, but it wasn't enough: also I had to cut Half of the head from one of the Steering Pump's Rear Bolts, to prevent the Base for said choke's spring from hitting it.

► A **second** Solution consist in, besides from removing the above mentioned Spring, to Completely Remove its Base from the Carb, along the choke's Butterflies (or choke plates), so you don't need to cut nothing.

► A **third** solution done by other persons, is to install the Weber **Backwards**, with the Choke facing the windshield instead to the front; it is doable, but in my own humble opinion, it might lead to another complex set of Problems. You can see photos and read further, in this example:

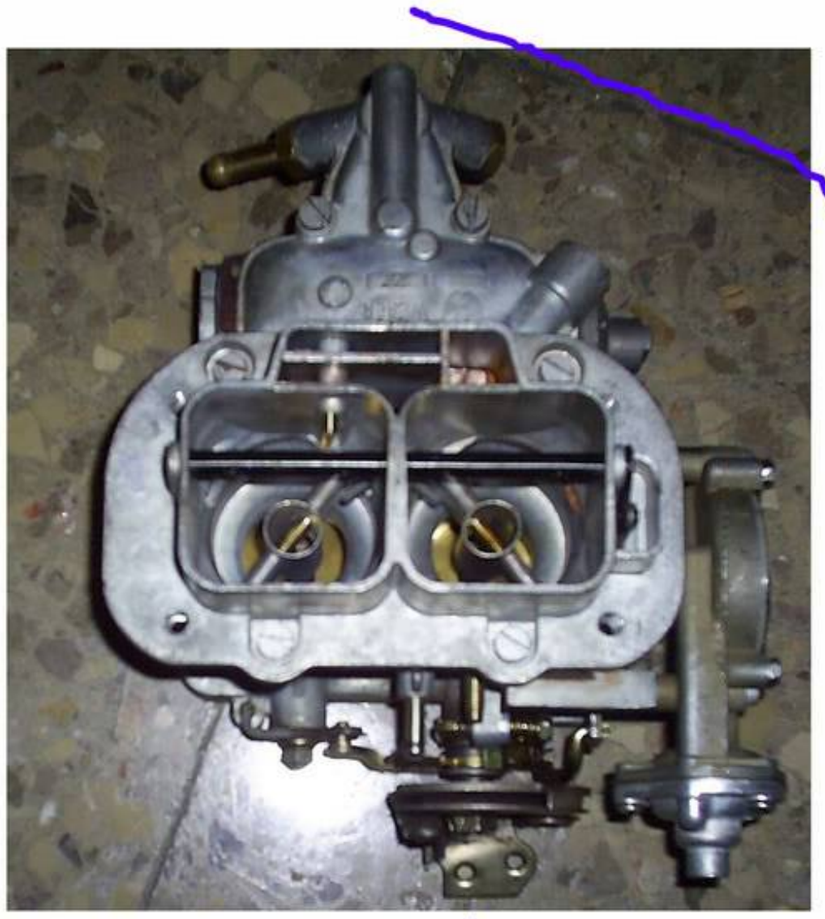
~► http://www.ultimatesubaru.org/forum/topic/156836-installing-weber-3236-backwards/

► After lots of Research, **I** found a **fourth** and definitive Solution, which is easier than all the others. 🙂

Continue reading, because in the next posts № **2** and **3** of this writeup I'll explain with details this better Solution ... 😁 ... which does **Not** require to modify, to cut nor to remove anything, so you can keep the Weber carburetor with a working Choke on the Models that features Power Steering, as easy and simple as install and go.

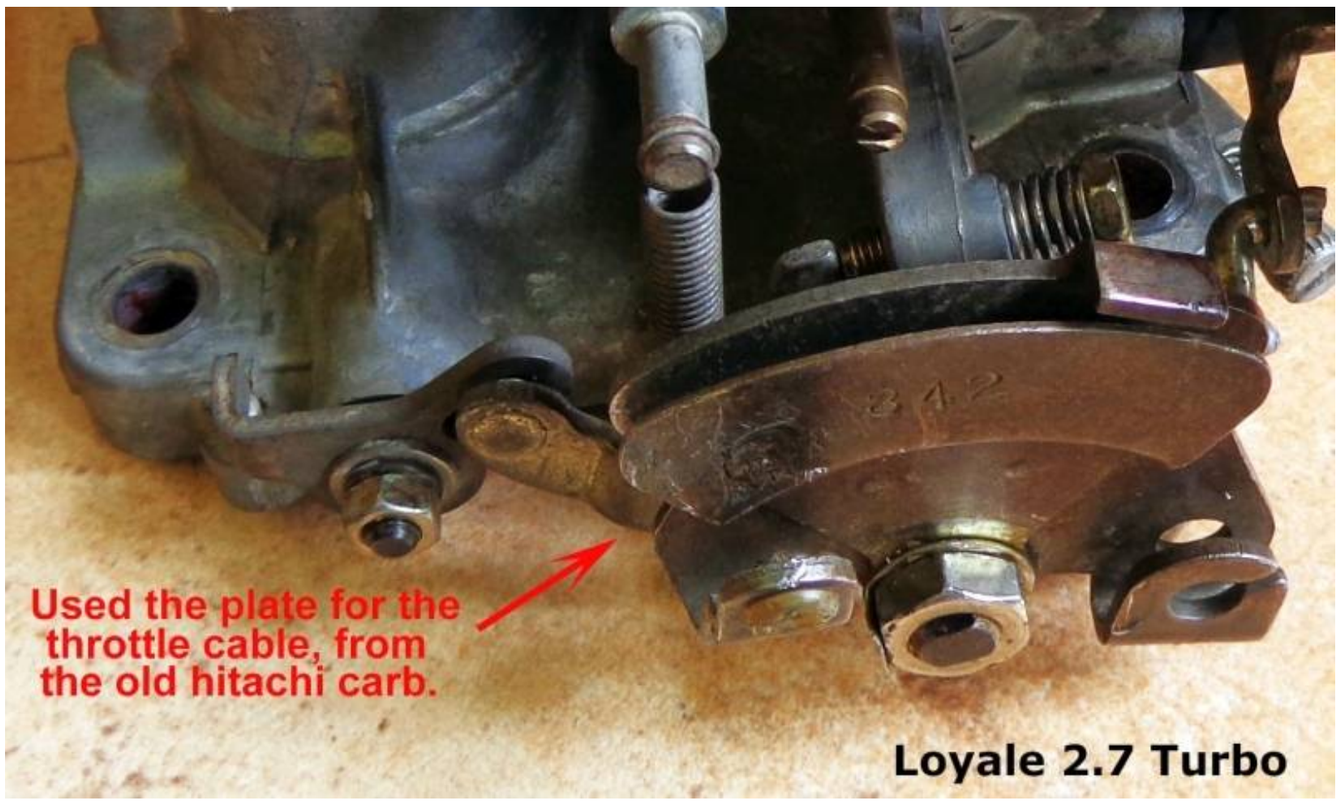
Hooking properly the Accelerator Cable

Redline - Weber Carburetor
32 / 36
Without the Choke & Choke Plates



Plus the Original Subaru
Cable Plate

I installed on the Weber Carb, the throttle's Cable Plate Taken From the old Craptachi carb...

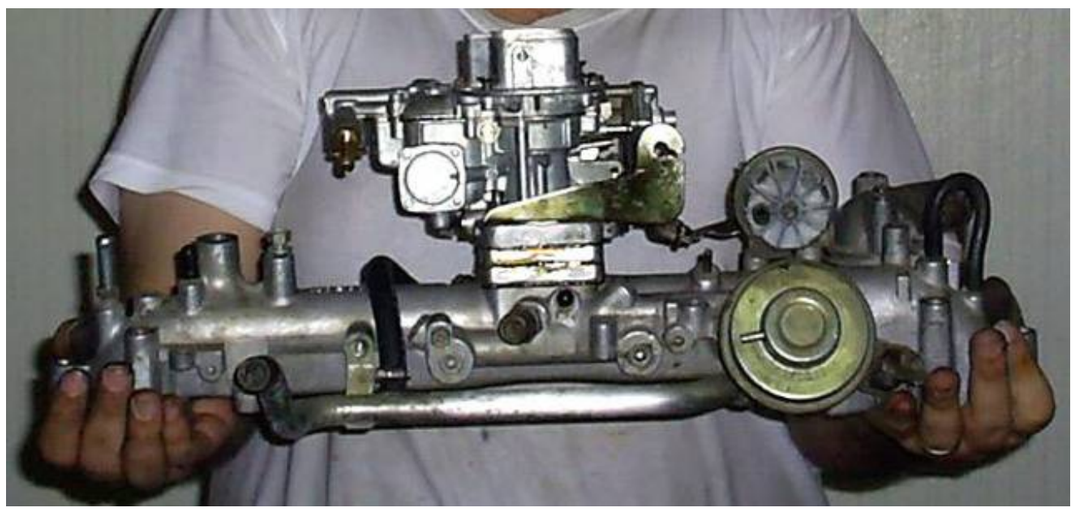


...Plus the part of it that works with the Air Conditioner Accelerator Actuator, which with a simple twist on its metal plate (due to the new carb's different angle) I managed to made it work good.

The **K-731** kit from Redline-Weber, also includes a Bracket to hold the Accelerator's Cable in Place, you must install it **Carefully** without Bending it, on the two rear screws that holds the Carburetor, on the Adapter plate; and you'll notice that the Accelerator's Pedal really covers the complete Acceleration Travel on the Weber Carburetor.

In case said Bracket is bent Towards the Carburetor, the accelerator's Pedal will never get the Full Acceleration from the Carburetor because the Cable doesn't go Back enough to fully Open the Secondary -High- stage; in that case you'll need to bend it back; but Never do it when it is installed, it could damage the Adapter Plates; so take the Bracket out and bend it there. Once the Bracket is properly set, the accelerator pedal provides full travel for the accelerator on the Weber carburetor.

So, the **Intake Manifold** + the twin **Adapter Plates** + the 32/36 progressive **Weber Carburetor** + the accelerator cable's **Bracket** behind, ended looking in this Way:



(Yes: Those are my dirty Hands)

Once installed, the EA82 Engine started at the Very First Try and Purred like a Kitten...

a **Boxer** Kitten*!* ... 😄 ... you know.

The Weber carb reveals somehow the Hiding potencial of the engine, and the Boxer Rumble **Sound** of the Carburated EA82's at its Best*!* ... 😄 ... While lets you Clean the crowded engine bay, removing lots of unused smog stuff. It is a Win-Win Deal for sure.

I Noticed a Huge **Improvement** inmediately*!* ... Summarized in a quicker Engine Response and Faster Acceleration, smoother Idle and a really noticeable Better Low end torque.

Fuel Consumption remains close to the Stock Specs ... (if you drive carefully) ... but the Weber swap could make you to want to keep the gas pedal floored ... 😲 ... in that case, fuel consumption will increase for sure 🙂

Edited October 8, 2016 by Loyale 2.7 Turbo

2

Loyale 2.7 Turbo
The Mighty "BumbleBeast"

Members
1792
7629 posts
Roatán, Honduras.

Posted September 7, 2011 (edited)

Report post

A Much Better Adapter Plate

Several years have already passed since my Weber Swap and I've Learned Lots of Things from my Experience that I want to Share Here.

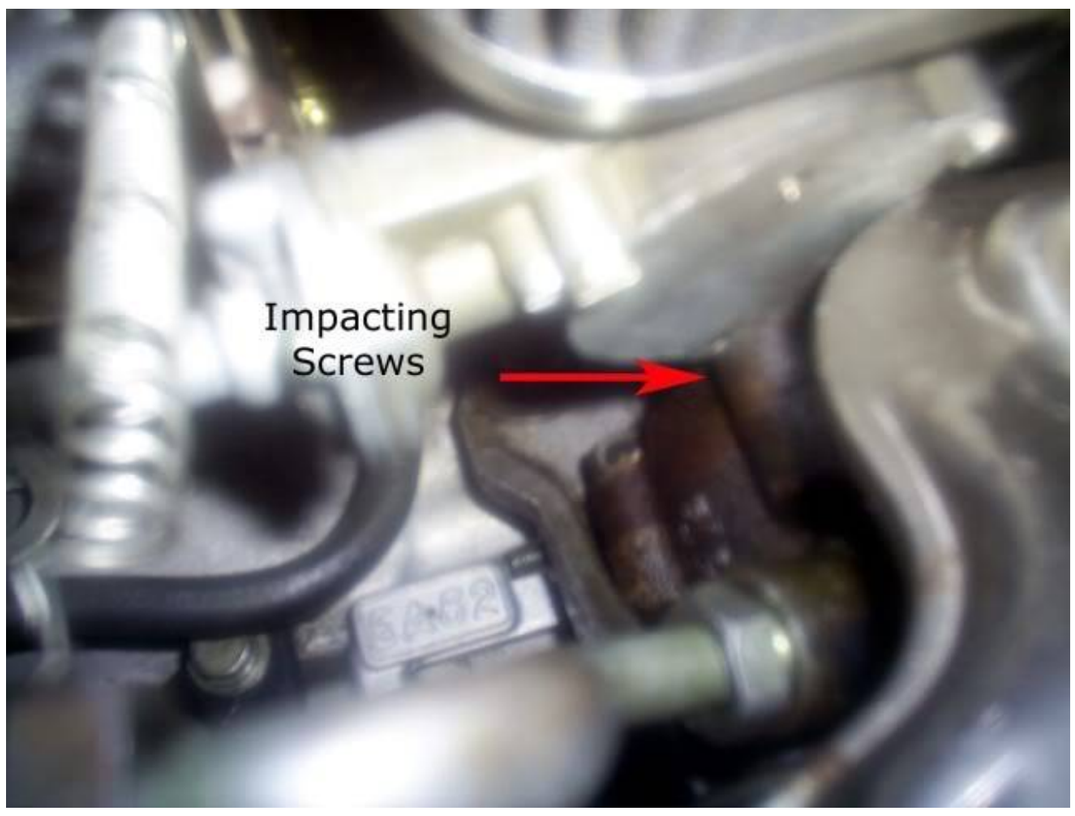
First of All, the **K-731** Kit is a Great kit but the Two Plate Adapter **Sucks***!* ... 😠 ... I Understand that they wanted to Keep the Whole kit, cheap; but by using that *low* two-plate adaptor, **three** problems happens. I already explained the first two in the post above, but let me summarize:

► **First**: You need to redrill and redo bigger the intake manifold's **threads** for the first plate.

► **Second**: The **Choke** had the above described problem with the Power Steering equiped Models: Not only the Whole Choke Hits the Rear of the Power Steerin' Pump, but even removing the choke, its base Hits one of that Pump's Screws.

As I wrote, I had to Cut that Screw's Head, to allow the Weber Carb

to Completely Sit flat as it should, on that (lousy) two plate Adaptor.



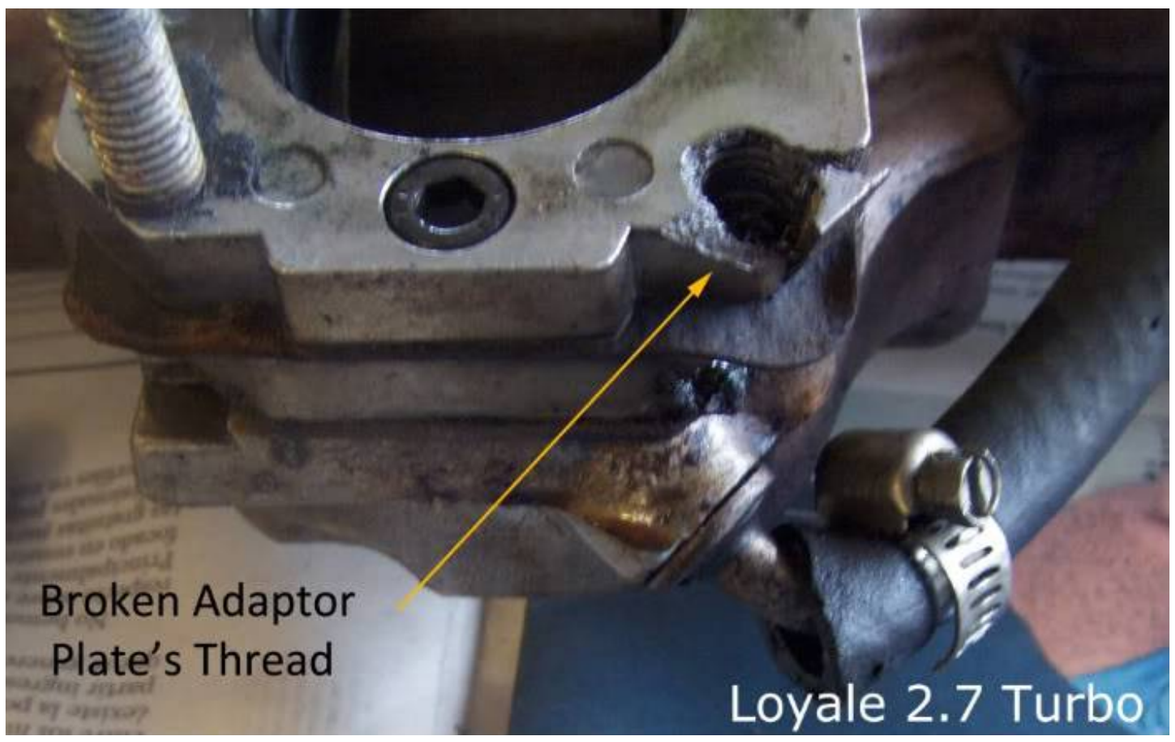
And I Had to Completely remove the Choke.

(Thanks God it isn't Needed here at the Caribbean Tropics)

I've sent it Brand New, including the Butterflies and Hardware

to a Great Friend and USMB Member in Australia.

► **Third**: Only time and usage taught me that, if you Need to take out the Weber Carb to do a Cleanup, etc, there's an enormous chance that **This** is Going to Happen:



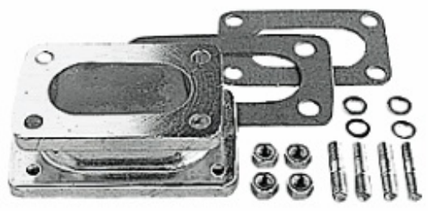
After some years of Use, that happened to my thin, Two Plate adapter; even if I removed the Carb **Carefully** and only a couple of times before; this breakage is due to the **Angle** of the Tool, forcing to Remove the Nut at that Point behind the Power Steering Pump's reservoir, it makes much effort to the Weak, thin aluminium of that Plate because the Carb sits too Low, with that lousy adapter's plates.

So, I Searched locally at all the aftermarket stores in my area, and also all across the internet, to find a Way **Better Adapter** to Fit the **Weber** 32/36 carburetor to the EA82 engine's intake manifold; and I found it *!* ... ... it was Originally Designed to be used on certain **Datsun** Vehicles that came factory with a 1600 engine, which featured a Hitachi Carburetor, that has the Same measurements on the Mounting Base (identical size) as the factory Subaru Hitachi Carburetor.

The Adapter that I found, is Made by "**Trans-Dapt**" Model Nº **2107**

and is a **Strong** and Thick, **Single Plate** adapter; as you can see below:

Trans Dapt 2107 - Trans Dapt Performance Products Carb Adapters

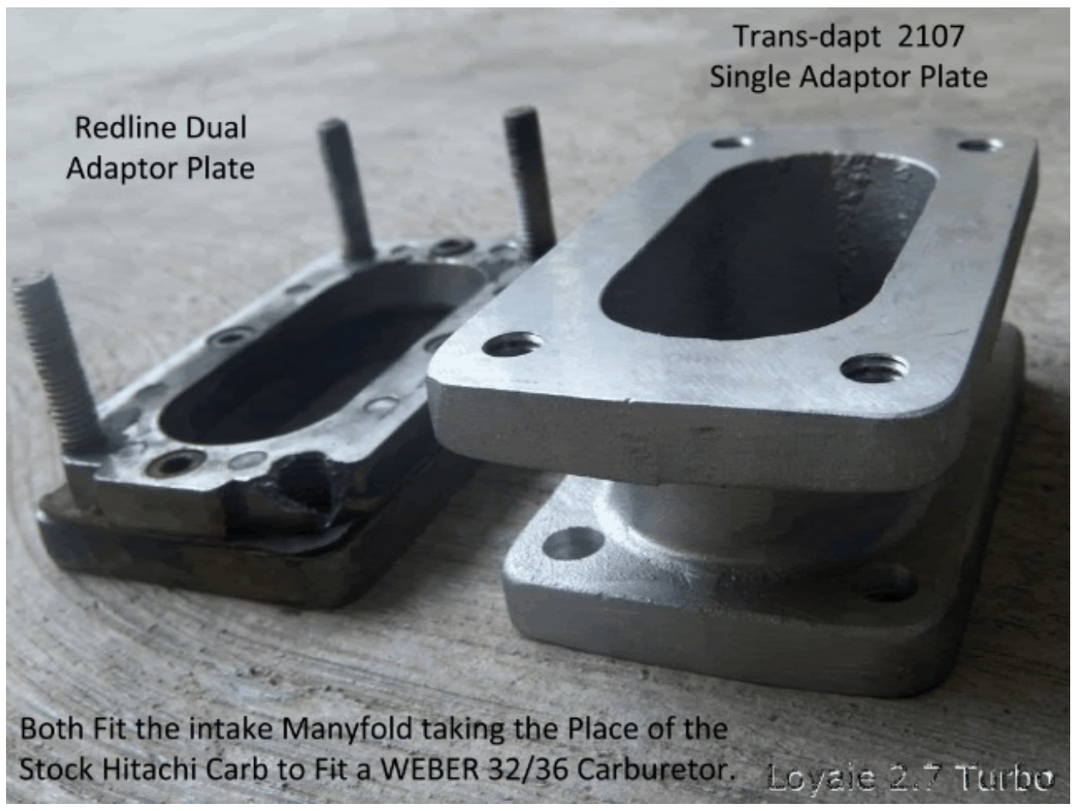


Trans Dapt #969-2107
WEBER/DATSUN 1600 CARB ADAPTER

Loyale 2.7 Turbo

I Obtained it at **amazon.com**, Here you can see it when it Came by Mail:

And here you can see the Old Two-Plate (broken) Adapter Vs the New Single Plate Adapter:



The New Single Plate Adapter is much **Taller** and **Thicker** than the Double Plate older one, So it **Solves** the Problem of the impacting Screws / Choke while it **Raises Up** the Base to install the Weber Carb. That also makes an **Easier Reach** to the Screws that Holds the Carb, in case you want to Remove it for Servicing / Cleanup, so no more Forcing angle tool anymore. Please see detailed information and a photo regarding this, on the Post Nº **3** Below.

The Trans-Dapt 2107 adapter **Directly Bolts** in the EA82's intake Manifold without any Problem, you can use either the Original Subaru Thin Screws or the thicker diameter ones, but is Better idea to Bolt it Using the Thicker Screws as I Explained above.

Important Note: None of the Adapter Plates I show in this writeup, will fit on the EA81 nor any other Subaru Engine's intake manifold, those are specific for the **EA82** engine **only**, however, you can "adapt" the Trans-Dapt 2107, to the older engine's intake manifolds, by using Aluminium **Welding**. Continue reading... :)

Edited November 15, 2015 by Loyale 2.7 Turbo
Misspelling

Loyale 2.7 Turbo
The Mighty "BumbleBeast"

Members
1792
7629 posts
Roatán, Honduras.

Posted September 7, 2011 (edited)

Report post

Another Problems ... **and more Solutions!** :)

A simple problem occurs only when you Switch from the thin and low, lousy adapter plates, to that thicker and taller, Single Plate Adapter; Because it **Raises Up** the Weber Carb: you won't be able to continue using the **2½**" tall Air Filter Element anymore, Because now it will Rub the Hood; **Unless** your Subie has installed a Lift kit that Dropped the Engine's Crossmember **1½**"

This is the **2½**" tall Air Filter Element,

I can use it because my EA82 "**BumbleBeast**" Wagon, is Lifted :grin:

The Solution for unlifted Subarus:

To Switch to the Shorter **1¾**" tall Air Filter element.

Both are "**Standard**" Air Filters for the Weber Carbs and are easy to Find, usually the Taller one is Widely used in Weber Swaps while the Shorter one is Widely used in VW Bugs, the Subaru EA81 / EA71 engined Vehicles, etc...

UPDATE:

After a Decade using my 32/36 Weber carburetor without any issue nor complains, **I obtained another Weber Carburetor** by mere Coincidence, the Story is told: ~► **Here**, this Weber Carburetor is identical to my old one, but is a Decade Newer and came with **Choke**, and also the fuel flow cutoff Solenoid, which is commonly known as the "Anti-Dieseling" Solenoid.

The Motivation I had to change my good ol' Weber, was only to be completely **Sure** that the Choke fits without modifications, and now I can assure this to you:

To use the thicker and taller, single plate adapter, Resolves this issues:

- Resolves the lack of space for the Choke assembly.
- Resolves the impacting screws' issue.
- Relieves the forced Angle for the tool during screwing and unscrewing the Bolts.
- and Makes Easier this Retrofitting, for sure...

Let me show you, the **Clearance** between the Choke and Power Steering Pump's Tank:

The clearance is Enough, however you can hit the Metal reservoir at the Power Steering Pump, in order to get More Clearance as well; also you can see how easier is to reach now, the Mounting Screws.

That clearance is gained not only by the Taller adapter Plate, but also, using the ⅛" Plastic, temperature insulator along the gaskets, between the Weber Carburetor's Base and the Adaptor Plate's top. Such plastic temperature insulator, is pictured below in post Nº **8** so, keep scrolling*!* 🙂

Important Note: The only downside of having a much taller and thicker, single Plate adaptor, is that you can Not keep the accelerator actuator for the Air Conditioner, because now the accelerator's cable **plate** on the carburetor, is raised too high to be reached properly by the vacuum actuator that is bolted to the intake manifold.

Frankly, this actuator is **Not** really "Necessary" at all: I still have a good working A/C system on my Subie, and despite that the RPM's goes too **Low** at idle with A/C on, the engine never dies.

But if you want to keep the A/C system's Accelerator Actuator working, you'll need to **raise** the vacuum actuator from its mounting base at the intake manifold; enough to reach the now taller position of the Carburetor's accelerator cable plate.

In my case, I removed the Actuator, the metal plate and all the related stuff and vacuum hoses, to have an even Cleaner engine's bay. 😁

Edited November 15, 2015 by Loyale 2.7 Turbo

Loyale 2.7 Turbo

The Mighty "BumbleBeast"

Members

1792

7629 posts

Roatán, Honduras.

Posted September 7, 2011 (edited)

Report post

After that many Years of Driving my Subie with the Weber Carb, I have removed it for Cleansing few Times. The First time was due to an "Error" done by a *friend* who was "Helping" me to do a Paint Job, he "Mistakenly" poured Paint Thinner in the Carb and somehow melted the Accelerator Pump's Diaphragm:

Part No.: 1586-36

Accelerator Pump Diaphragm Assembly, Weber 32/36 DGV

I Found one Brand New locally, on a E.M.P.I. Rebuild Kit.

I've Took out the Weber and Deeply Cleaned it:

EA82 Weber Carburetor Jettings

(I'll use simple mathematics: I don't want to give Scientifically accurate and detailed calculations here, it is not necessary)

The Original Hitachi Carb that came Stock on my Subie (Mine is 1985 California -Yes, USA- Version) came Stock Jetted as Follows: **116** in Low -primary- Stage and **160** in High -secondary- Stage, for a Grand Total of **276**.

My New Weber Carb which Came in the **K-731** Kit Already Jetted for the EA82, came with **140** in Both Low -primary- Stage and **140** in High -secondary- Stage ... the Weber Carb's Grand Total is **280**, Very close to the Stock Hitachi's Grand Total.

Since I did the Weber Carb Swap in my Subie, I Noticed that the **Lower** Range RPM's had an **increased Torque**, the engine developed an overall faster acceleration, but the High Range RPM's Behaviour seems to be Almost Equal to the Stock Hitachi Carb behaviour: both carbs gave the Same *Feeling* at Higher Rpm's.

So, Thinking about the Increased Air Bleeding Capabilities & Size of the Weber Carb, also thinking about the **140** / **140** Jets and the *Feeling* it Gave in Both Stages, I Realized that the People at Redline-Weber Sets their Carbs for Applications at the Average Use, Because the Weber Carb's Grand Total of **280** is Very close to the Hitachi Carb's Grand Total of **276** ... **Despite** that the Weber is Really *Bigger and more capable*...

People at Redline-Weber did increased the Low -primary- stage jetting but they decreased the high -secondary- stage jetting, comparing to the stock Hitachi Carb's jettings; and that explains somehow the increased low end torque given by the Weber Carb as it came jetted... So, I wanted to gain the Same improvement found in the Low -primary- stage, on the High -secondary- stage too.

So, I Re-Jetted my Weber

First I *tried* with Many Different Jettings and did Test Drives in Many Different Situations and circumstances, in Order to Get the Best Performance Without Getting the Mixture too Rich or Flooding, nor letting my Subie to Swallow more Gas ***unnecessary***.

After All that Weekend's Tests, I Left the Weber's **Low** Stage as it Came: **140** without Modifications as it already develops the Best performance in Low -primary- stage.

While a small Performance gain at the High -secondary- Stage was obtained with **162** ... 😲 ... So Now my Subie has **140** on Low -Primary- Stage and **162** on High -Secondary- Stage, for a grand total of **302**.

comparing it to the 276 of the Stock Craptachi Carb... it only increased 26 points.

Seems like the Weber's Air Bleedings already came set to Handle the increased amount of Mixture very Well... but if I Drive with Full Pressed Gas Pedal it will Use a Li'l Bit more Gas than Before.

Important Note: being **Honest**, I believe that these 32/36 progressive Weber carburetors, already performs great with both stages being @ **140**, and it is really **Not necessary** to increase the size of the Jets at all; in fact I went back to 140 / 140 when I switched to a Newer Weber carburetor, as I explained in the post Nº **3** above.

Distributor's Vacuum Advance

I Changed the Distribuitor's dual port Vacuum advance, for a Single Port unit: it works much ***Better*** with the Weber's single vacuum port for distribuitor's advance. In the Photo below you can see the removed two port vacuum advance, and the Box with the Part Number of the Single Port vacuum advance, which fit perfectly my "Nippon-Denso" EA82 Distributor.

Both Vacuum Advance units were fitted on the **NIPPON-DENSO** Distributor, found on the 2WD (FWD) EA82 carbureted engined subarus; as far as I know, those aren't intended for the **Hitachi** Distributors found on the 4WD (AWD) Carbureted EA82's but these Might fit, I have never tried them on the Hitachi Distributors.

I prefer the Nippon-Denso distributors, because they has a faster acceleration curve than the Hitachi counterparts, also Nippon-Densos doesn't have the lousy screw to hold the rotor in place, that if gets loose, might leave you stranded in the middle of nowhere; you can swap distributors, is pretty easy, and Nippon-Densos are easier to work with.

Sparkplugs

The best ones for the EA82 engine, are the BPR6EY11 ones, made by **NGK** which by the way, comes in Light Reddish Colour, they're Not Blackening at all with the Weber swap.

Edited November 15, 2015 by Loyale 2.7 Turbo

1

Loyale 2.7 Turbo
The Mighty "BumbleBeast"

Members
1792
7629 posts
Roatán, Honduras.

Posted September 7, 2011 (edited)

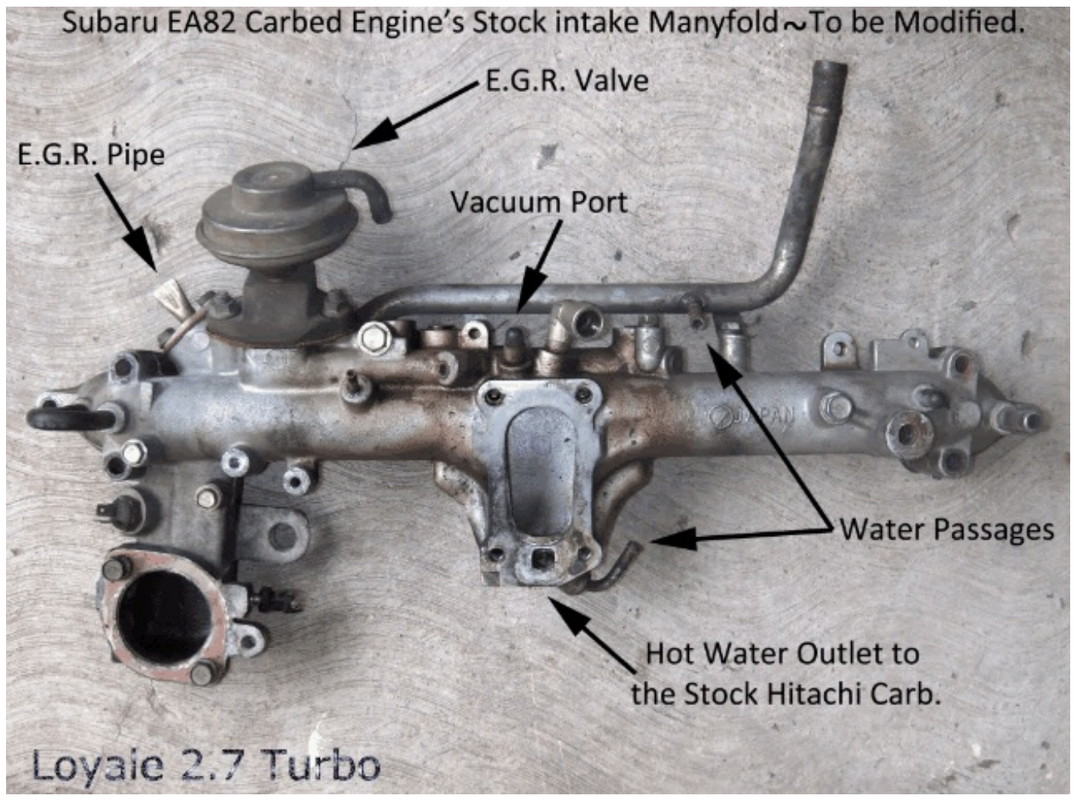
Report post

Intake Manifold's Modifications

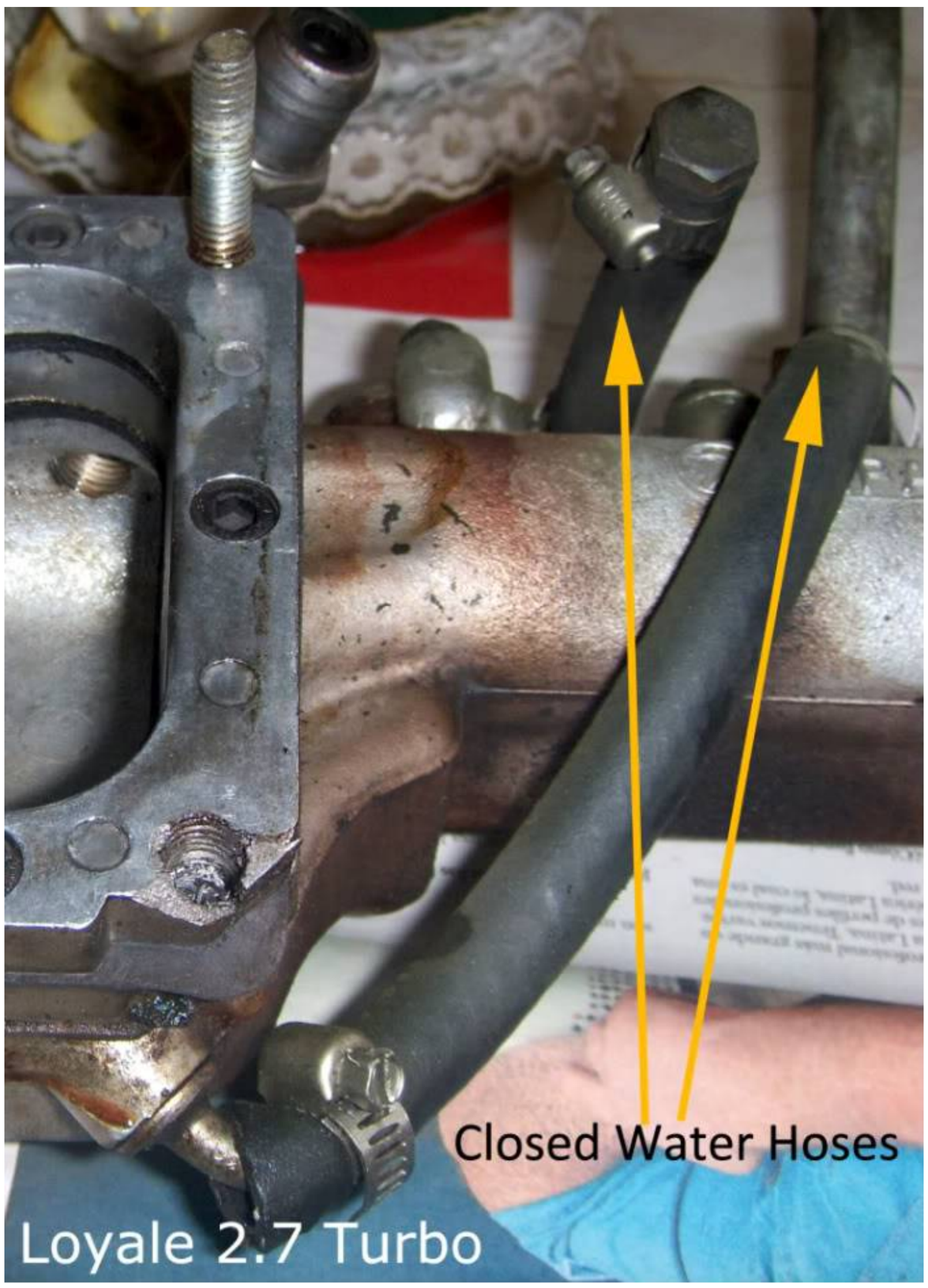
After that many Years of Driving my Subie with the Weber, I Know that I'll **Never** go Back to the *lousy* Hitachi **feedback** carburetor Anymore. I'm More than Satisfied with the awesome simplicity and reliability of the Weber Carburetor, its increased, faster response and Boxer Rumble's Roar it makes ... ... So I Decided to make my Swap job, more "**Permanent**" and stronger.

Here I Will Explain some Modifications that I did to the EA82 engine's intake manifold, but I Clarify that some of these mods are Not Necessary, however, I did them to make things **Stronger** and get Rid of Possible Future Failure points.

Right after obtaining my Brand New Trans-Dapt **2107** adapter, I Removed the intake Manifold and the Weber Carb. Also the old and Damaged Twin plates' adapter and the Gaskets it had in between.



The Gasket under the First plate, held good there closing the Water Passage intended for the Old Craptachi Carb, but it had five years Years in place, working hard, and was **About to Fail**, Even if I have closed the Water Hoses as you can see:



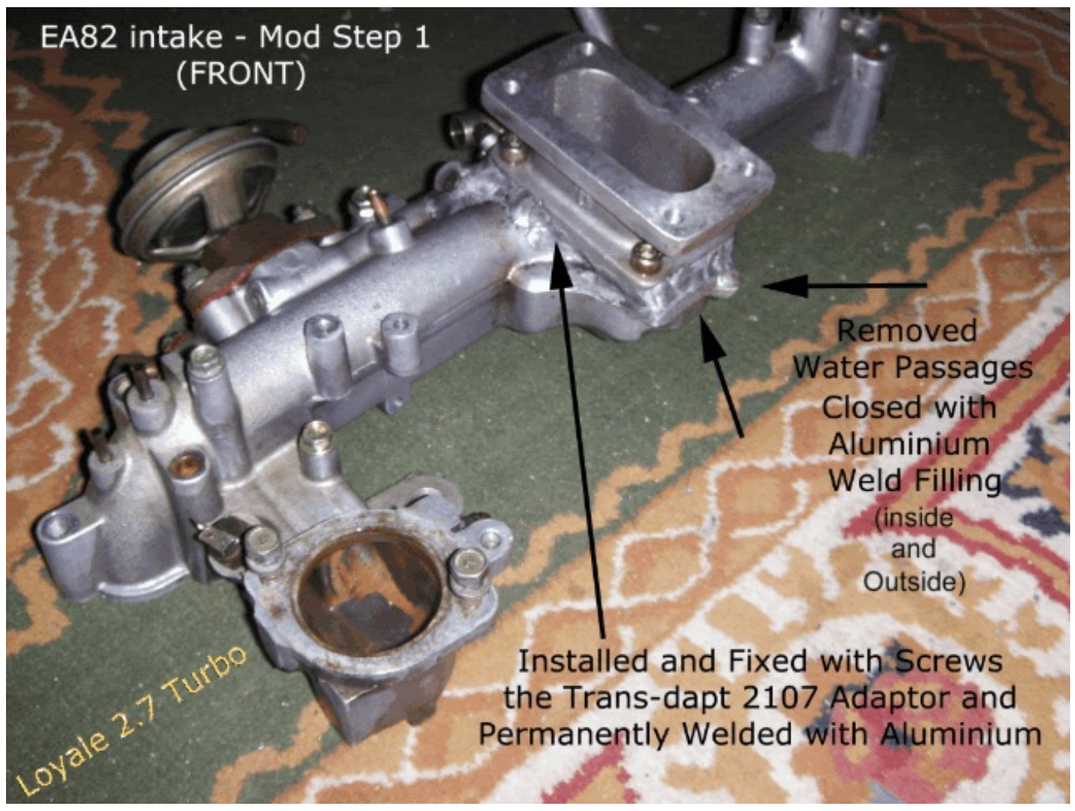
Modifications' Steps and more Details:

► **First Step**:

I Wanted to Remove and Completely **Erase** those Unused Water Passages, So I Took the intake Manifold to a Professional Shop, in order to Cut the Water inlet pipe, and Permanently **Fill** it, with **Aluminium** Welding of the Same Quality as the intake, also to **Fill** the Opening (hole) and the Water Passage.

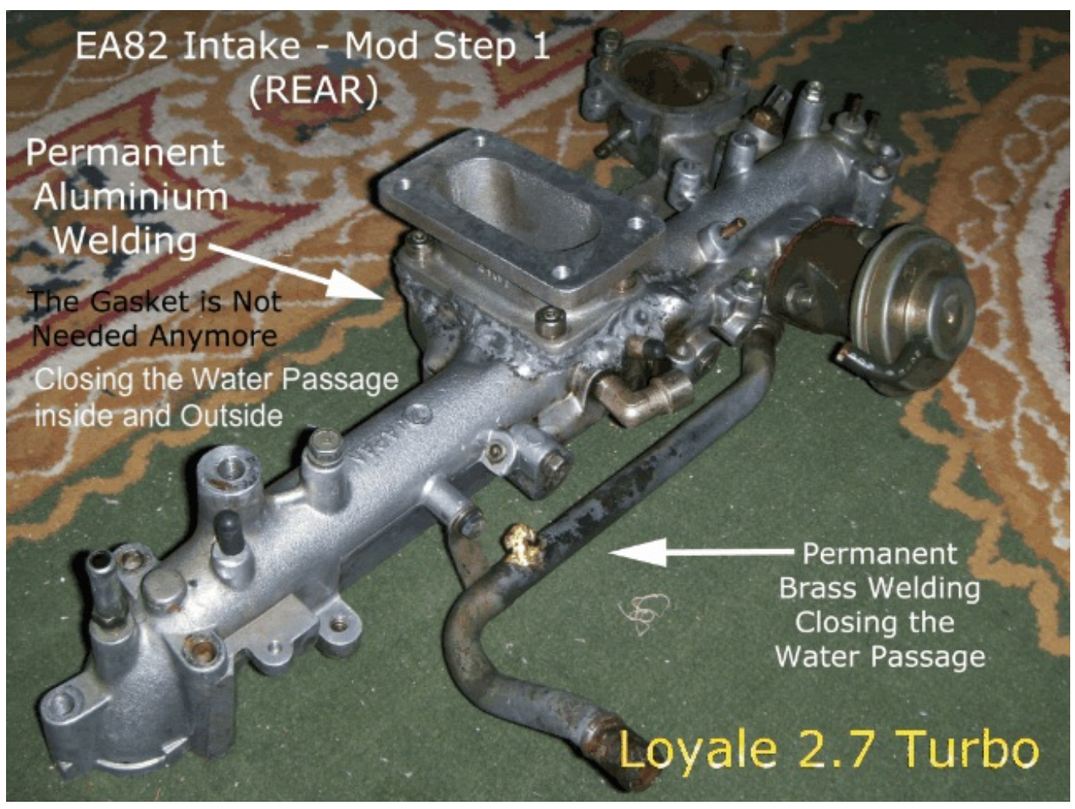
The intake manifold is made of good quality Aluminium; I Asked them to Bolt on the Trans-Dapt **2107** Adapter, (which is made of same good quality Aluminium), Directly to the intake manifold, **without Gasket** and then Completely **Weld** it to the intake with (same good quality) Aluminium.

So the adapter is not only Held in place by the Bolts, but completely Welded with Aluminium; Making it to be Solid, One-Piece with the intake manifold itself; also doing that does eliminates permanently the Need of a **Gasket** between the intake manifold and the adapter plate, so it also erases a Future Gasket Fail Problem, or a vacuum leak / coolant leak problem.



Also I asked them to **Close** the hot Water Outlet passage,

that came from the Heather pipe, with Permanent **Brass Welding**.



Edited November 15, 2015 by Loyale 2.7 Turbo

Loyale 2.7 Turbo

The Mighty "BumbleBeast"

Members
1792
7629 posts
Roatán, Honduras.

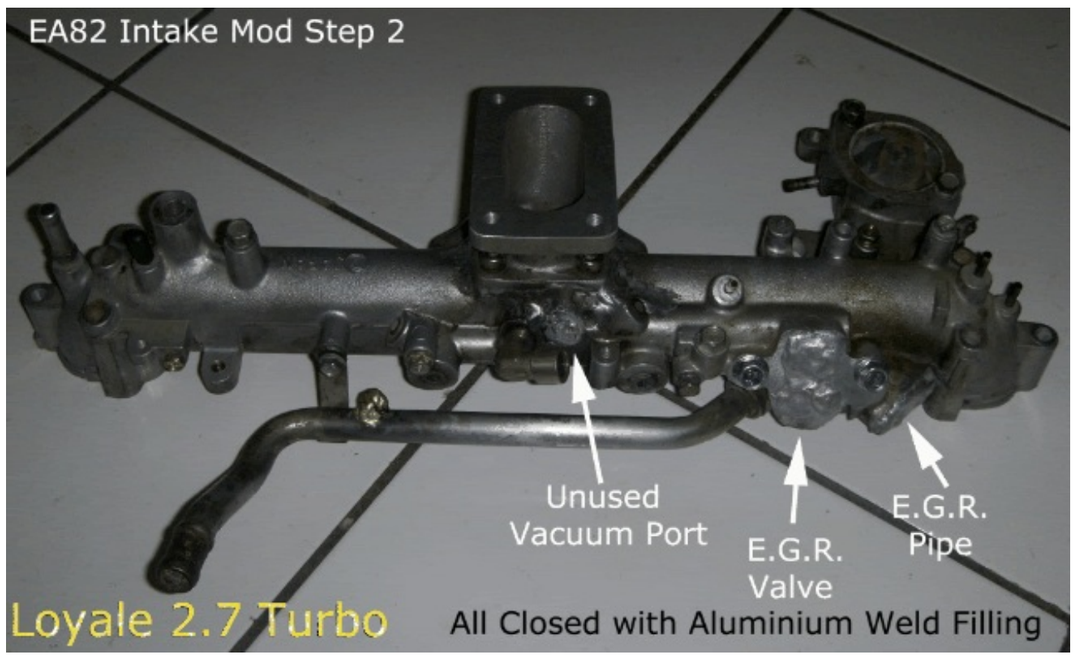
Posted September 7, 2011 (edited)

Report post

► Second Step:

Since I Changed the Heads on my EA82 engine (There are three generations of EA82 Heads, see ~► Here) the New Heads came **Without** EGR Passages. (it is Known that the EA82 had a EGR Design Flaw, after all, the EA82 was originally intended to be a ~► 2.0L engine) The EGR Stuff isn't Needed anymore.

So I Asked them at the Shop, to Close Weld with Aluminium Filling, the EGR Valve place, the EGR Pipe and a unused Vacuum Port that was aside the P.C.V. valve inlet.



When it came from the Aluminium Welding,

Once again I Washed the intake manifold Throughly

with Household Detergent, in order to remove any debris.

Here you have a Closer View of the Aluminium Welding,

Note: There's No Hot Water inlet anymore *!*

► **Third Step**: (optional)

I Checked the Aluminium Fillings and I Noticed Very tiny Holes that made me Think if one of those could Lead to a Vacuum Leak... So in order of have peace of mind, I smeared completely all the Aluminium fillings and weldings, with the Strongest "*Cold Welding Compound*" I could find, in order to Completely Seal the intake, I used 4 minutes J.B. Weld of industrial grade; I had the idea of painting the intake after everything was done, but I dismissed the idea, because usually the paintings on engine parts, becomes dirty and looks even worse... so I left it, unpainted.

This step of smearing J.B. Weld over the aluminium fillings, is Not necessary,

But gives me Peace of Mind, somehow

Edited November 15, 2015 by Loyale 2.7 Turbo

Loyale 2.7 Turbo
The Mighty "BumbleBeast"

Members
1792
7629 posts
Roatán, Honduras.

Posted September 7, 2011 (edited)

Report post

Additional information:

The exhaust system and ignition coil Upgrades,

Plus ignition timing and more...

Prior to continue to the rest of the installation procedures, let me tell you that the Weber Carburetor Swap, somehow **Frees** the air / fuel mixture flow at the **intake**, and in order to gain more performance from this Swap, you'll need to free the **exhaust** flow equally, and also you'll need to increase the **Spark** at the combustion chambers as well, in order to obtain the maximum advantages from the Weber Carburetor Swap, otherwise you'll gain limited advantages, from the carburetor only.

► **Exhaust System**: The stock one is restrictictive on the Subaru, however, you must be aware that the engine does Not need any "Backpressure", it is a pretty *usual confusion*; what it really needs, is to join the Left head's exhaust to the Right head's exhaust, in a "**Y**" shaped pipe (other designs, such as Unequal Lenght Headers, works as well) in order to gain the proper Scavenging effect.

The exhaust system needs **Scavenging**, not Backpressure; see this documentation for further information on the Subject:

> It is easy to see how this misunderstanding arises. Lets' say that Max puts a 3-inch system on his normally aspirated car. He soon realises that he has lost power right through the power band. The connection is made in his throbbing brain .... put on 3" pipe = loss of backpressure = loss of power. Max erroneously concludes that you need backpressure to retain performance. He has ignored the need for exhaust **gas velocity** to get that **scavenge** effect.

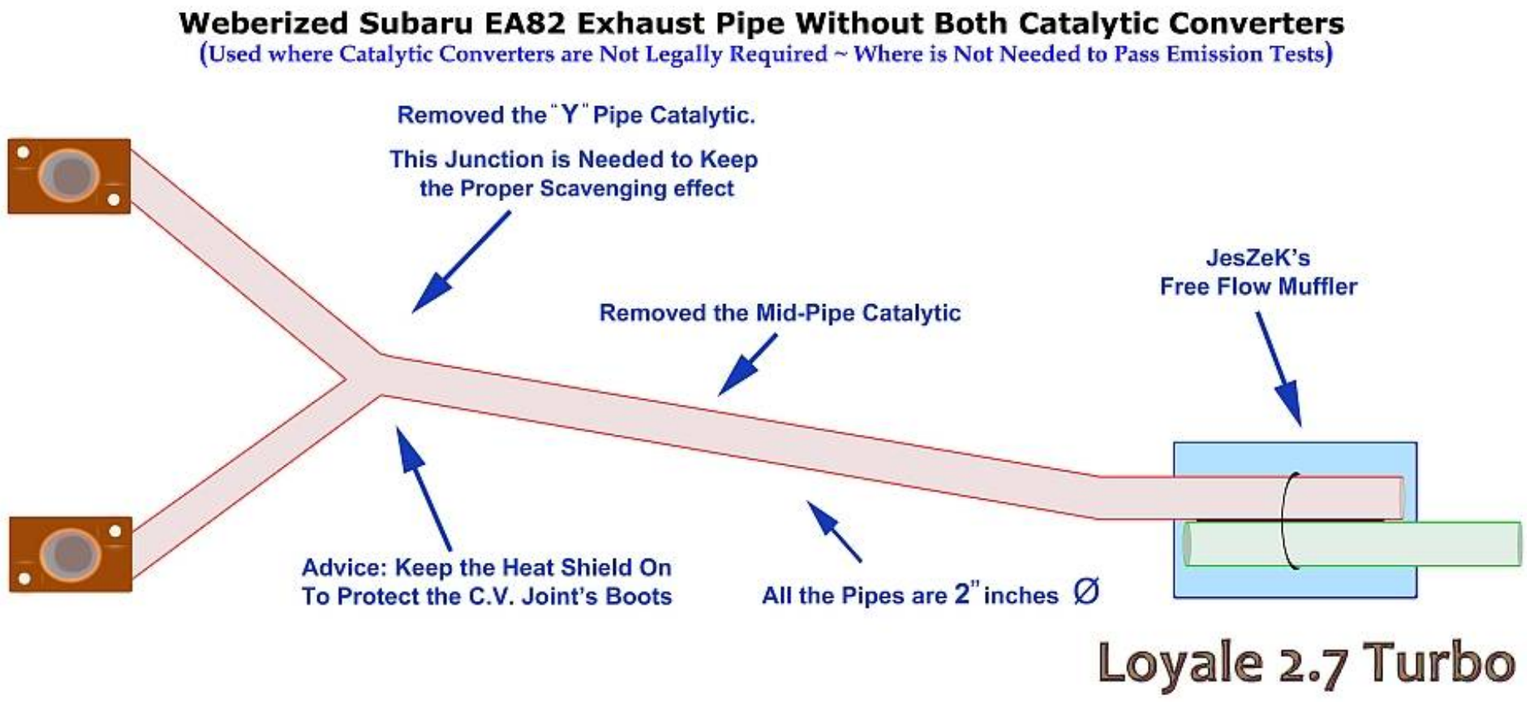
~► http://www.miata.net/garage/KnowYourCar/S4_Back.html

> Back pressure at it's most extreme form can lead to reversion of the exhaust stream - that is to say the exhaust will flow backwards, which is not good. The trick is to have a pipe that that is as narrow as possible while having as close to zero back pressure as possible at the RPM range you want your power band to be located at. Exhaust pipe diameters are best suited to a particular RPM range (remember the pulses!). A smaller pipe diameter will produce higher exhaust velocities at a lower RPM but create unacceptably high amounts of back pressure at high rpm. Thus if your power band is located 2000-3000 RPM you'd want a narrower pipe than if your power band is located at 8000-9000 RPM.

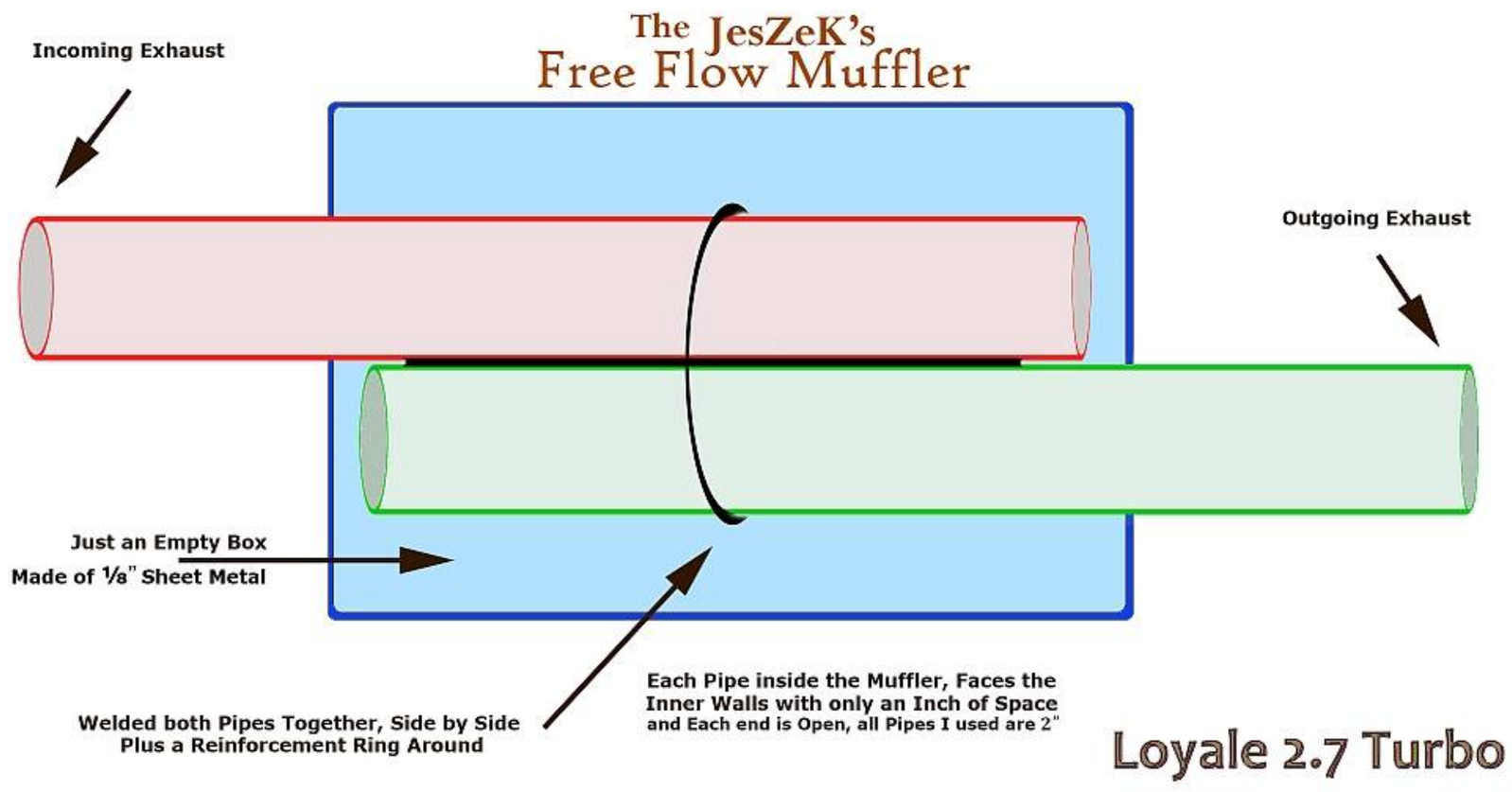
~► http://www.gomog.com/allmorgan/exhaustbackpressure.html

To make a Free Flow Exhaust with the **proper scavenging** for the EA82 engine, (Also suitable for the EA81 engine as well), we used **2**" Ø pipes on all the exhaust system, removed the primary Catalytic converter (or pre cat) which is inside the junction where both heads' exhausts, meets; we Joined both together in a simple "**Y**" and then we removed the Secondary Catalytic converter, which was located in the pipe between said junction and the Muffler; so now the Pipe goes straight from the "**Y**" to a Custom built *"Free Flow"* Muffler.

> ... Here in Honduras, **catalytic converters are not required by Law**, so it is impossible to find a New one, only the clogged ones at Junk Yards from cars that comes cut or crashed from the USA ... so we have to Delete catalytics to prevent engine damage, because catalytics gets **clogged** easy with our pathetic Gasolines...



Closer View of the Muffler:



That Exhaust is not Loud,

in fact I hear more intake's induction noise with the Weber carb under acceleration.

► **Ignition Coil**: As stated above, the increased air / fuel mixture will need an increased **Spark** at the Combustion Chambers, in order to burn the mixture in a Better way, which increases efficiency and gains a little more throttle response, while keeps cleaner the emissions and exhaust pipes.

Important Note: Different ignition coils does have different Ohms of Resistance or **Ω** Value, so if the aftermarket coil has much different **Ω** value, comparing to the stock ignition coil, it could kill the Ignition module inside the distributor, not due to the increased coil's power output; the Risk is because of the increased effort done by the ignition Module thru its two wires sent to the Coil, to make that Coil to work, due to its increased **Ω** resistance.

My Weberized EA82 Subaru has a High Vibration **Accel Superstock 8140** ignition coil (Made in USA) filled with *Epoxy* instead of *Oil*, which is supposed to be capable of providing a **45,000** Volts output, which is around Twice than the stock ignition coil's output; and the Nippon Denso Distributor has been working great with it since a Decade ago.

The Accel Superstock 8140 High Vibration (Made in USA) Coil has the Following Values:

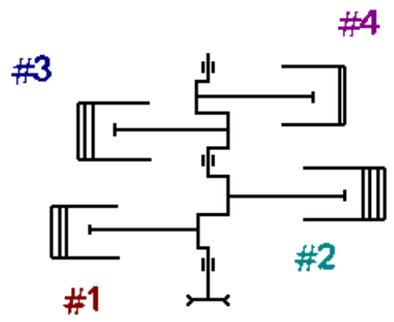
> ...an Accel Super Stock Coil:
>
> Primary Resist **1.2 Ohms**
>
> Secondary **8.9 K Ohms**;
>
> Turn Ratio **100:1**;
>
> Max Voltage **42000v**;

And the Stock Nippon Denso distributor's ignition Coil, has almost the same values:

> I can tell you that the resistance values are very close to stock specs.
>
> Primary= **1.02 ohms**
>
> Secondary=between **8 - 12K ohms**
>
> But I have no experience using one.

Since the Accel's coil Resistance **Ω** Values are Closer to the Stock Coil's Resistance **Ω** Values, there has never been a problem with that setup.

► **Timing**: The Carbureted versions of the EA82 engine, have an under hood sticker that states that their ignition timing, must be set @ **8º** with a +/- **2º** variations; while their EFi EA82 counterparts, the under hood sticker states **20º** with same +/- **2º** variation; however, I found that Weberized EA82's tend to Perform much **better**, with timing set @ around **20º** like their EFi counterparts. Otherwise if timing is kept ~ **8º**, the overall performance feels pretty dull...



Now, lets **continue** with this Weber Carburetor Swap *!*

Edited November 25, 2015 by Loyale 2.7 Turbo

1

Loyale 2.7 Turbo
The Mighty "BumbleBeast"

Members
1792
7629 posts
Roatán, Honduras.

Posted September 7, 2011 (edited)

Report post

Putting all Together

The **E**.**M**.**P**.**I**. Rebuild Kit that I Obtained locally, had the Accelerator Pump's Diaphragm plus all the Gaskets and a Temperature isolating ⅛" Phenolic Spacer, which is used as a Sandwich Between two Gaskets; so the Carb will Run *Cooler* 

I Kindly suggest you to smear a thin layer of **Shellac** on both sides of each gasket, in order to avoid having future vacuum leaks. This is How the Whole thing Looked Like, just before reinstall it on the EA82 engine:

The Three Fuel Tank's Lines

► The **5/16"** is the main **Fuel supply** line, Delivers the Fuel to the Carburetor.

► The **1/4"** is the Tank's **Vent** Line...

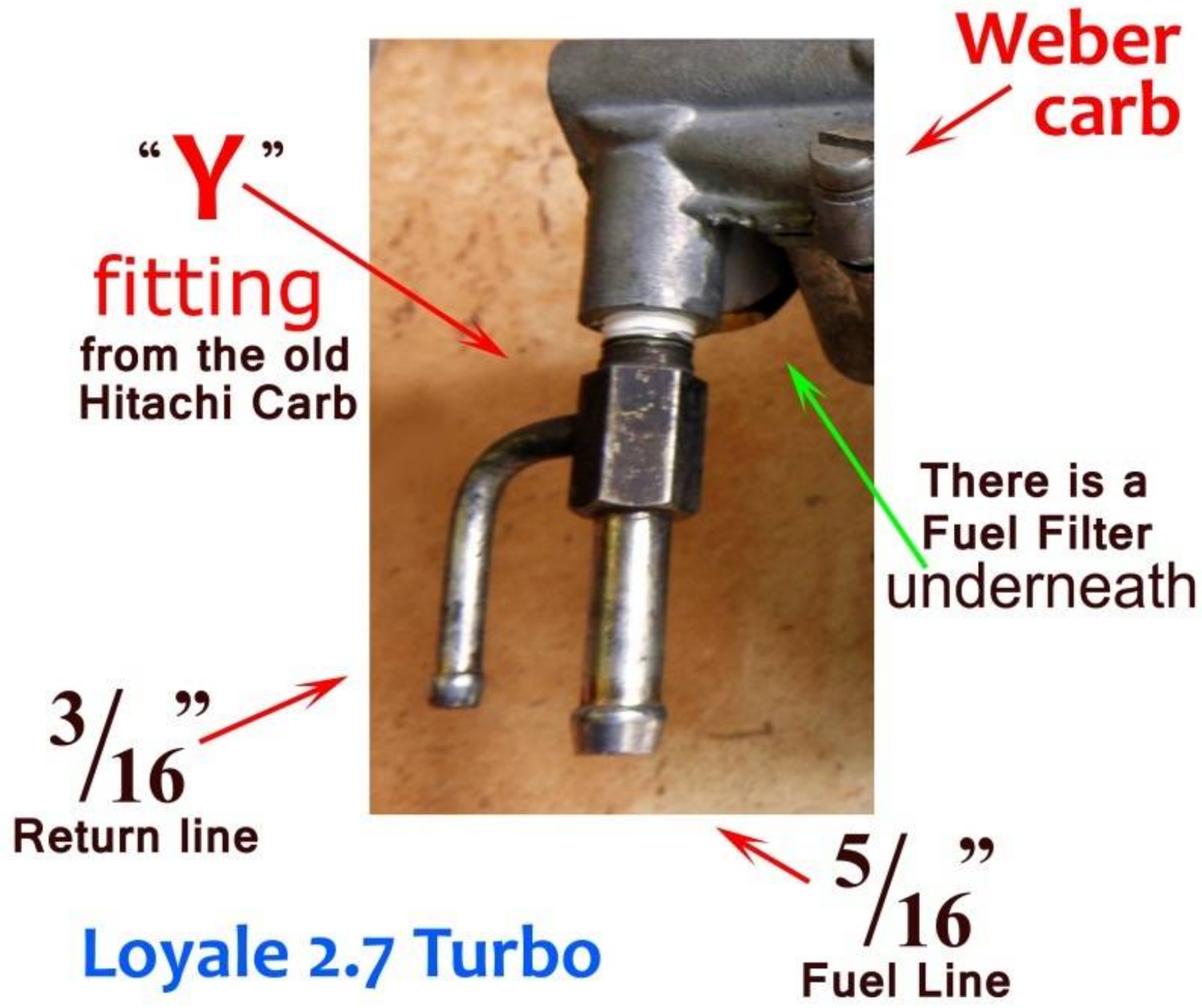
► The **3/16"** is Fuel **Return** line, from the Carburetor to the Tank.

(Yes, the Return line on EA82 Carbureted models has a small diameter but is enough)

On my first Weber install, a decade ago, I only hooked the main **5/16** line to the carb, then I cap closed the **return** using a screw, and I left the **vent** line open, with a short **1/4** hose, but I attached one of those mini air filters to it's end, in order to prevent debris to getting into the vent line...

...those two unused lines hanged next to the Brake's Booster, hiding there and the Subie worked Flawlessly like that for a Decade.

When I obtained a much newer **Weber** carburetor, (as I told in post number **3** above), I decided to remove the straight fuel **inlet fitting** from the Weber carb, and place there the "**Y**" shaped fuel inlet fitting from my old craptachi carb, which has an Straight 5/16 inlet, and also an smaller 3/16 **return** line built in; in order to reconnect the closed Return line to the fuel tank; with the idea of helping the Weber's Float to do easier its Job, also it helps the Fuel Pump. The thread's size and pitch are equal between the Weber and the craptachi Carburetors.



I used a couple of turns of Teflon (P.T.F.E.) Tape, on the fitting's thread, to avoid fuel leakage, the Hitachi carb's "**Y**" Fitting must be screwed Carefully to the Weber carb's base, otherwise, the weber's Base could break: Be Careful to not overtight it*!* 😵

WARNING*!* Closing the Return and the Vent Lines that comes from the Fuel Tank, or Hooking a **T** between them is a ***Dreadful*** idea; it will made a strong pressure buildup on the Tank and its lines / Hoses and in my own humble opinion, could be **Dangerous**, especially during hot weather days.

The Fuel Lines' Differences: Carbureted EA82 Vs EFi EA82

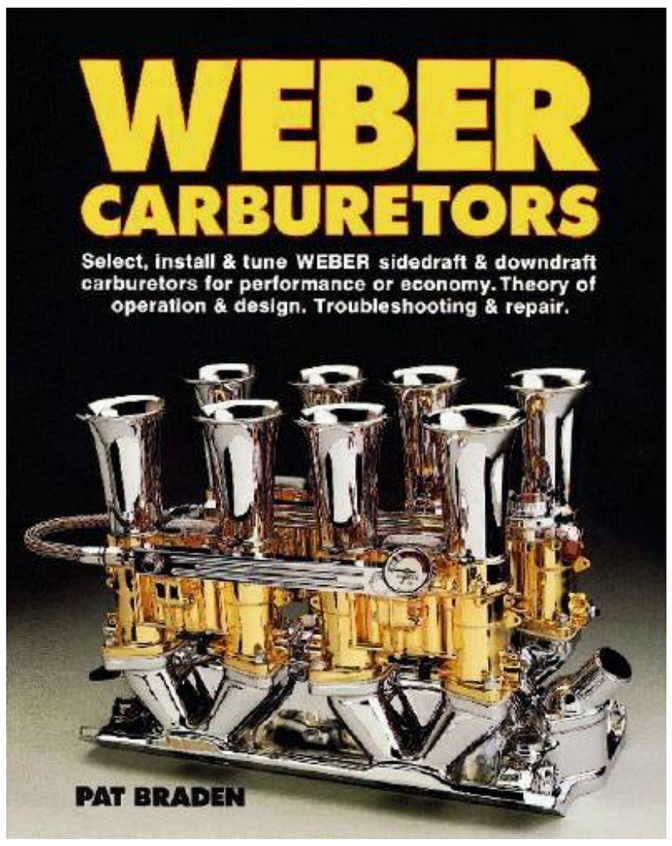
You must be Aware of this: On the Carbureted EA82's, the Main Fuel delivery line (**5/16**") comes alone to the engine's bay, from above the Frame Rail, down under the Master Cylinder; and the Vent and Return lines (**1/4**" and **3/16**") comes together, above the Brake's Booster.

While on the EFi EA82 counterparts; the Main **Fuel** delivery line and the **Vent** line (**5/16**" and **1/4**"), comes together above the brake's Booster, while the **Return** line comes alone, down, from above the frame rail, and has an increased diameter than the Carbureted Models.

That information will help those who wants to install a Carbureted EA82 on a Body that came from factory with an EFi EA82 or Viceversa.

Fuel Pumps and **Pressure**:

The book "**Weber Carburetors**" by Pat Braden, notes on page 22:



*"In general, Webers should receive a maximum fuel pressure of **3.5** psi"*

You must consider that Excessive pressure will keep the needle valve in the float bowl from closing properly, and it will **Flood** the carburetor.

The stock fuel Pump on Carbureted Subaru EA82's, have **5/16**" in and out fittings, and delivers around **2** to **3** PSi; so, they're perfect for these Webers. In case you don't have the original Subaru fuel pump, or if you are retrofitting a carbureted EA82 on a previously EFi body which still has its EFi fuel pump, I recommend to obtain a Subaru Original fuel pump but for **Carbureted** EA82's. Do Not use the **EFi** fuel Pumps*!*

However, if you can not find another, original Subaru fuel pump, then you should obtain another electric fuel Pump, whose fittings are both **5/16**" and delivers no more than **4** PSi.

I know that using the "**Y**" inlet fitting on the Carburetor + a properly hooked Feed & Return lines, will take care of the Excessive Fuel, but if the electric fuel Pump that you obtain, has more than **4** PSi, I kindly suggest you to obtain an in-line Fuel Pressure Regulator letting it to keep the pressure under **4** PSi.

There are many Fuel Pressure Regulators on the aftermarket stores, I've seen ~► This one, being used in Weber swaps, on other cars.

IMPORTANT NOTES:

► The **fuel pump** doesn't run forever with the ignition key in "**ON**" position, the fuel pump only runs for few seconds and then Quits if the engine is not running; waiting for the signal of the running engine, to continue pumping.

► If the Stock fuel pump for a **carbureted** EA82's goes Bad, you can substitute it with almost any aftermarket unit that can be installed outside the Tank, with **5/16**" fittings; it only has to deliver similar pressure (between **2** to **4** PSi).

► you might consider to install an in-line **5/16**" fuel Check valve like this:

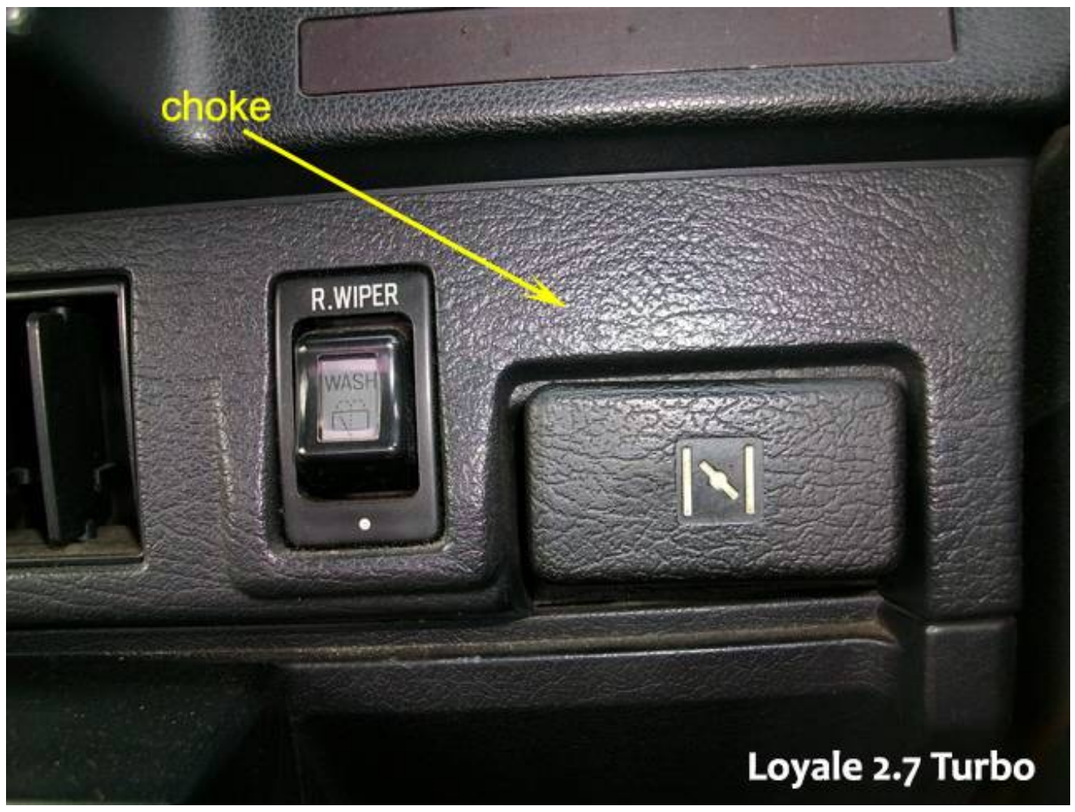
Which will help to ease starting the engine after several days of not being used, because it keeps fuel on the line, preventing the fuel from going back to the Tank. It should be installed after the Fuel Pump.

► There is a small **Fuel Filter** hiding underneath the Base for the fuel inlet, built-in the Weber Carb, it requires to be Cleansed every time you remove your Weber for a Cleanup; it is often bypassed during such Cleansing Process.

► The **fuel cutoff Solenoid** doesn't come in Standard Webers. It is an "Extra" that you could ask and / or obtain later, because it is easy to add on.

► If the Weber Carburetor you obtain, has "**Manual**" choke instead of the Automatic "**Electric choke**", remember that Subaru sold the second (EA81) and Third (EA82) generations of the Subaru Leone, with Manual Choke (Mainly outside the USA), so the Dashboards already have provisions to install the Manual Choke's Cable; but you will need to obtain the Lever, or be creative retrofitting the lever from other car.

In the Photo below, I show you where the choke's Lever came, on the Third gen (EA82) Subaru Leone:



The brand / Quality of the products you choose, depends on you \ how much you want to spend.

Edited November 24, 2016 by Loyale 2.7 Turbo

1

Loyale 2.7 Turbo
The Mighty "BumbleBeast"

Members
1792
7629 posts
Roatán, Honduras.

Posted September 7, 2011 (edited)

Report post

► The Hoses Mess:

the **P.C.V.** - the **A.S.V.** - and the **E.G.R.** Systems.

These system were **Not** available on all the markets where Subaru sold their EA engined cars, only where such system were legally required / mandatory.

- **A**.**S**.**V**. = "Air Suction Valve"

The Purpose of the **A**.**S**.**V**. system is to put some **fresh air** onto the Exhaust system, to aid to the Cat alytic Converter to work as it Should; the two Small Black Boxes on it (one per side of the Engine), are intended for Noise reduction, from the exhaust system's noises.

I kindly suggest you to **get Rid** completely of the **A**.**S**.**V**. system; there will not be any harmful effects from doing that, and the engine will remain **quiet** if you block everything off, correctly.

The subject has been covered several times on the Forums; personally I prefer to cut and weld shut off the pipes, also there's the *"Nickel"* and the *"Quarter"* tricks... it doesn't matter how you erase that system, as long as it is properly done; you can read some good ideas from other USMB members regarding the subject, ~► **Here**.

- **E**.**G**.**R**. = "Exhaust Gases Recirculation"

The purpose of this system, is to put part of the **Exhaust** Gases, onto the Air / Fuel Mixture at the Intake Manifold under certain acceleration, but the Design of this E.G.R. system for the EA82 engines, has proven to be inefficient and even Harmful for the Engine's health, affecting its performance and longevity.

Also the Subaru Engineers Sealed its Passage on the redesigned Third Gen EA82 **Heads**; by the way, you can see Pictures that will let you differentiate between the Three (3) different generations of EA82 Heads, ~► Here.

I kindly suggest you to **get Rid** completely of the **E**.**G**.**R**. system, unless it is legally required in your area to pass emissions.

In case you want to use the **E.G.R**. system:

You only need to attach a 3/16" vacuum hose, from the E.G.R.'s Valve at the intake manifold, to the vacuum port that is located in the **Front-Left** of the Weber Carburetor; which is a port that starts to "Suck" only when the Secondary -high- Stage of the carburetor, is Open; which is the best moment to let-in, the Exhaust gases.

► **Important Note**: The other vacuum port at the front of the Weber carburetor, the **Front-Right**, is Progressive, and is intended to be used for the Vacuum Advance at the Distributor.

In case you want to get rid of the **E**.**G**.**R**. system, you have two choices:

- Lazy -popular- solution: To **unplug** the E.G.R. Valve's Vacuum port and cap close the suction port on the carb for it.

- What I Did: To **Remove** the E.G.R. valve from the intake along its pipe and block off their openings.

You can close 'em with Aluminium welding or use custom-made pieces of sheet metal as blocking plates, screwed in their places with silicone gasket-maker. Also you'll need to block off close the pipe that comes from the head.

- **P**.**C**.**V**. = is the "Positive Crankcase Ventilation"

This is the only one that is Really, **Really** Needed for the engine, So you need to properly Understand the reason **why** the **P**.**C**.**V**. system exists and **how** it Works:

Why*?* ... ... The engine **needs** an air Flow **in** and **out** of the Crankcase, not only to facilitate the crank's spin movement and release the pressure of the internals, but the purpose of this system, is mainly to take the **harmful** acid vapors **Outside** from the engine's internals, by routing those harmful acid vapors thru the **P**.**C**.**V**. valve at the intake Manifold, making possible that said vapors could be sucked by vacuum and **Burned** along the Air / Fuel Mixture on the Cylinders during their normal cycles.

This is How it Flows: To Coordinate the air flow direction with the Crank spin, the Passenger's side (R) Head does "Suck" Fresh air, while the Driver's Side (L) Head "Expels" that air along the Harmful Vapors. All that through the **5/8**" Openings on the Top of Each head. The Impulse that circulates that air, comes from the intake manifold's Vacuum, thru the P.C.V. **Valve**.

So, **very** Basically you'll need:

- *First*: To plug a **5/8**" Hose from the Passenger's Side (R) head opening, to the Air Filter Box, so it can Breathe Fresh, **Filtered** Air for the system. This side has the **incoming** air.
- *Second*: To plug another **5/8**" Hose from the Driver's Side (L) head opening, to the **P**.**C**.**V**. Valve at the intake manifold, so its vacuum will move the air and take out the Harmful vapors to get *Burned* in the Cylinders. This side has the **Outgoing** Vapors.

Warning*!* ... ... Said **P**.**C**.**V**. Setup needs a "*Presure Relief Detour*" on that second hose, to Relieve the Suction from the P.C.V.'s **Valve**, in order to Avoid sucking oil out of the valve cover.

To do So, you just Need to use a **5/8**" Detour "**T**" but with one Size Smaller (**3/8**") on the Driver's Side (L) Hose and route

that Smaller opening to a **Filtered** Fresh air Source; preferably at the Air Filter Box. (but it *could* go to an independent air filter as well)

This very Clear Picture Belongs to Kanurys from his EA82:

Please, note the Detour "**T**" placed right after the P.C.V. Valve at the intake manifold and how its detour is routed to a **new** (added) small opening at the Air Filter Box's Base.

Detailed explanation of the Connections at the **P**.**C**.**V**. system:

The Smaller diameter detour, placed with a **3/8**" out "**T**" on the Driver's side, is intended to avoid High pressure "**Sucking**" from the P.C.V. valve, and thus means to prevent **oil** to getting sucked and sent to the intake manifold, especially under *hard acceleration*, which could lead to have oil getting burned on the mixture at the cylinders, creating white smoke clouds, dirty sparkplugs, etc... is like having the *"Worn Engine"* symptoms without a worn engine.

It is better to use a smaller (maximum of **3/8**"~ minimum of **5/16**") diameter detour hose, plugged Directly to the air filter's box, **because**:

♪ If you use a **5/8**" detour (same Diameter as the rest), the **P**.**C**.**V**. valve most likely will suck fresh air thru it (Shorter travel), instead the Driver's side Head, and the whole P.C.V. setup will not make any sense, turning that system onto a completely **Useless** mess of hoses; because in that case, very few to none crankcase fumes will go to the intake manifold thru the P.C.V. valve, to get burnt.

This equals to install small air filters on each head's opening and the P.C.V. valve and leaving those open... such setup will turn the P.C.V. system completely **Useless** for sure.

♫ That smaller diameter detour shall be routed **Directly** to a fresh filtered air source, **Never** to the Other Head's Hose; in order to prevent a recirculating phenomenon where both sides moves air from each other and a very small to none amount of Harmful vapors goes to the intake to get burned.

Additional info:

In my Case, My **EA82** engine has over **300** K Miles of Hard, *Rude* Driving; Mainly off-road on (My Li'l Country) Honduras So it has a Problem: it trend to blow-by some oil with the outgoing Harmful Vapors thru the Driver's Side **5/8**" Hose.

So in my case, I decided to place an Oil Catch Can to Separate that Oil from the Fumes, between the Driver's side Head Hose (L) and the P.C.V. Valve, I obtained this one:

Let me emphasize that Once the **P**.**C**.**V**. System is Properly set, and the three (3) Needed vacuum lines are in place, as I will detail how to, on the Next post; you could **Get Rid of Everything Else** on the Vacuum Hoses mess, including the **E**.**G**.**R**. system, the **A**.**S**.**V**. **System**, its Hoses and the **two small Black Boxes**, which are one per side of the Engine.
(Deleting the **A**.**S**.**V**. system includes to Block the Exhaust openings.)

You won't believe the large amount of useless crappy stuff I Removed from the Engine's Bay, It ended as a Huge Box full, including the Small metallic vacuum lines' set, the Thermo-Vacuum Switch, the Carbon Canister, all the *"Spaghetti"* of Hoses, the **E**.**G**.**R**. System, the A/C accelerator Actuator, Sensors, wirings, the **A**.**S**.**V**. system, Hoses, the Craptachi Carb, the old Air Filter Box, etc...

Also my "**BumbleBeast**" runs without Both Catalytic Converters, on a free flow exhaust as you can see in post № **7** above.

Edited December 18, 2016 by Loyale 2.7 Turbo
To add another image

2

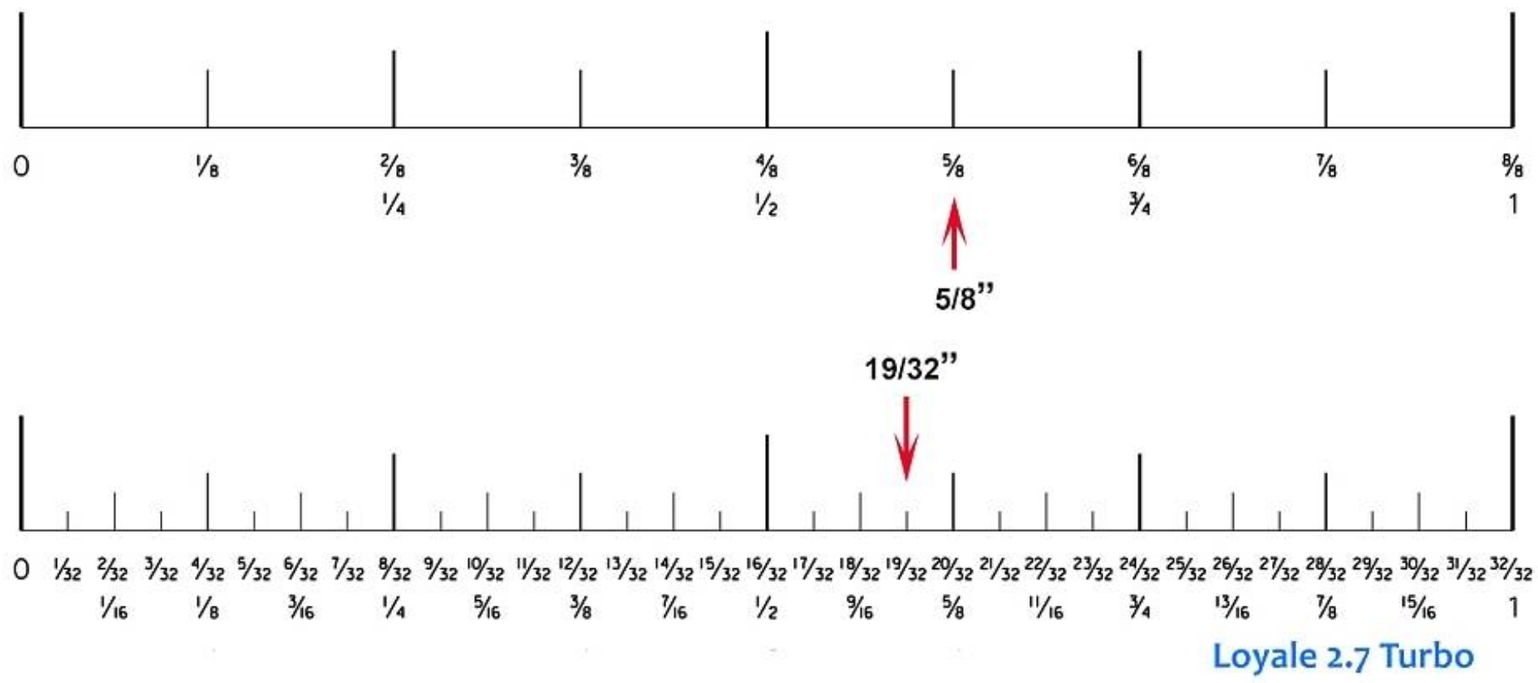
Loyale 2.7 Turbo
The Mighty "BumbleBeast"

Members
1792
7629 posts
Roatán, Honduras.

Posted September 7, 2011 (edited)

Report post

Remember: Japanese cars uses milimetric measurements, so the factory size for the main PCV system's Hoses, is the milimetric equivalent to **19/32**" (~ **15.1** mm) I used **5/8**" in evaporative systems' rated Hose, 5/8" = 20/32" (~ **15.8** mm) with perfect results.



5/8" is easier to find than **19/32**" and gives more room for the fumes to move freely.

So, I'll refer to all the hoses in inches only.

To do the proper **reinstall**, I needed:

1. Enough **5/8**" Hose (more than **4** foot needed).

2. Enough **3/8**" Hose (Less than **1** foot needed).

3. One Lightweight Plastic **5/8**" Tee with a **3/8**" detour opening.

(the **3/8**" detour is *very* important, do **Not** use an equal diameter tee)

4. One **5/8**" Lightweight Plastic Elbow to Use at the Air Filter Box,

(instead this Heavyweighted brass one I did before)

I obtained an Aluminium Elbow for the **P**.**C**.**V**. Valve:

(it is Not necessary, could be Directly Connected, but I Like it)

5. Add a New **3/8**" Opening, welding a **Plug** with Brass, to the Air Filter Box Base.

I took a Photo of it, to show you the two openings, which are intended for:

► The one on the **Left** was added by me; is for the *"**Pressure Relief**"* detour.

(This will be explained below)

► The one on the **Right**, is the straight **5/8**" opening, which goes to the above described **Elbow**. (Also this will be explained below. Keep Reading)

6. Enough **Clamps**, for each Hose's end. 😁

7. New intake Manifold's **Gaskets** and **Bolts**.

8. Rubber caps for closing the unused vacuum ports at the intake manifold.

I Reinstalled the intake Manifold using the **Original** Subaru Gaskets.

Prior to Install them, I Smeared both sides with a Light Coat of Ultra Cooper Silicone:

Forget About *Crappy* Aftermarket gaskets and you'll Avoid Future Problems.

Also I changed the Worn-out Old Screws that held the intake manifold in place,

with Newer ones (Found at the Local NAPA), which are Steel reinforced and Rust proof,

which are **8** mm X **80** mm X **1.25** Pitch:

In my Case I added an (optional) **Oil Catch Can**. 😁

As I wrote in previous posts, and in other threads:

My White Wagon isn't White Anymore. I Painted it in Yellow Colour as I **explained** **here**, Lighter tone than my *Other* Yellow Wagon (the Dead 2.7), but this one has Black Stripes, and many mods...

Now you will See how all this Stuff ends Together..

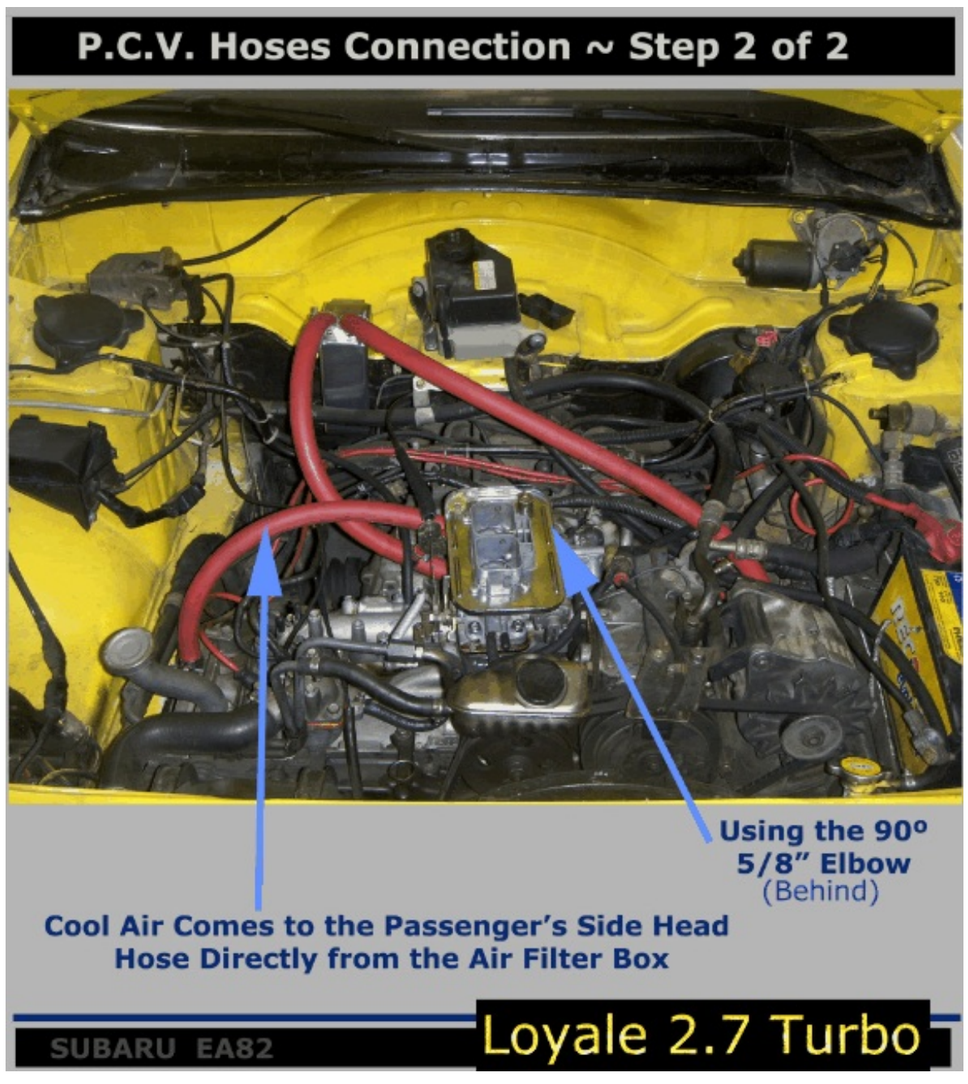
► **P.C.V.** Hoses Goes as Follow:

(Remember: these explanations are referenced for the **LHD** models)

First - The **Driver**'s (right) Side Head Opening, goes to the P.C.V. **Valve** at the intake Manifold, use enough **5/8**" Hose, but you must place the "**T**" with the **3/8**" detour for the "***Pressure Relief***" inbetween, then place enough **3/8**" Hose, directly from said "**T**" detour, to the added **3/8**" Opening on the Air Filter's Box base.

(In my case, the **Oil Catch Can** is in that same 5/8" hose Route as well, if you don't need one, use a Direct Hose)

Last - The **Passenger**'s (left) Side Head **5/8**" Hose goes **directly** to the Air Filter Box.



Please check this Photo below:

This setup made by **Kanurys** on his EA82 engine is the same,

except that he didn't installed an Oil Catch Can.

► Vacuum Lines Goes as Follows:

1. Use a Vacuum Hose, from the Front of the Weber's Right Port, to the Advance on the Distributor. (this is a **Progressive** Vacuum Port)
2. Use the Proper Vacuum Hose, from the intake manifold, to the Brake **Booster**.
3. Use another Vacuum Hose, from the intake Manifold, to the A/C vacuum accumulator **Bottle**.

Important Notes:

► The accumulator **bottle** under the Windshield, at the engine bay, behind the Passenger's side strut Tower (on LHD Models) is used to provide stable vacuum for the A/C **buttons** on the Dashboard and **also** for engaging the **4WD** mode on the models equiped with **Push-Button** transmission. So, if your subie doesn't have that kind of Transmission nor A/C, you can simply omit to connect that third vacuum line.

► The **E.G.R.** system is optional, if you want to run it, you'll need to hook a fourth vacuum line, as described previously in this writeup, on the post number **9** above.

► **Don't forget to cap Close all the unused ports at the intake manifold!** ⚠

Edited December 31, 2016 by Loyale 2.7 Turbo

to add Links

18

Loyale 2.7 Turbo

The Mighty "BumbleBeast"

Members

1792

7629 posts

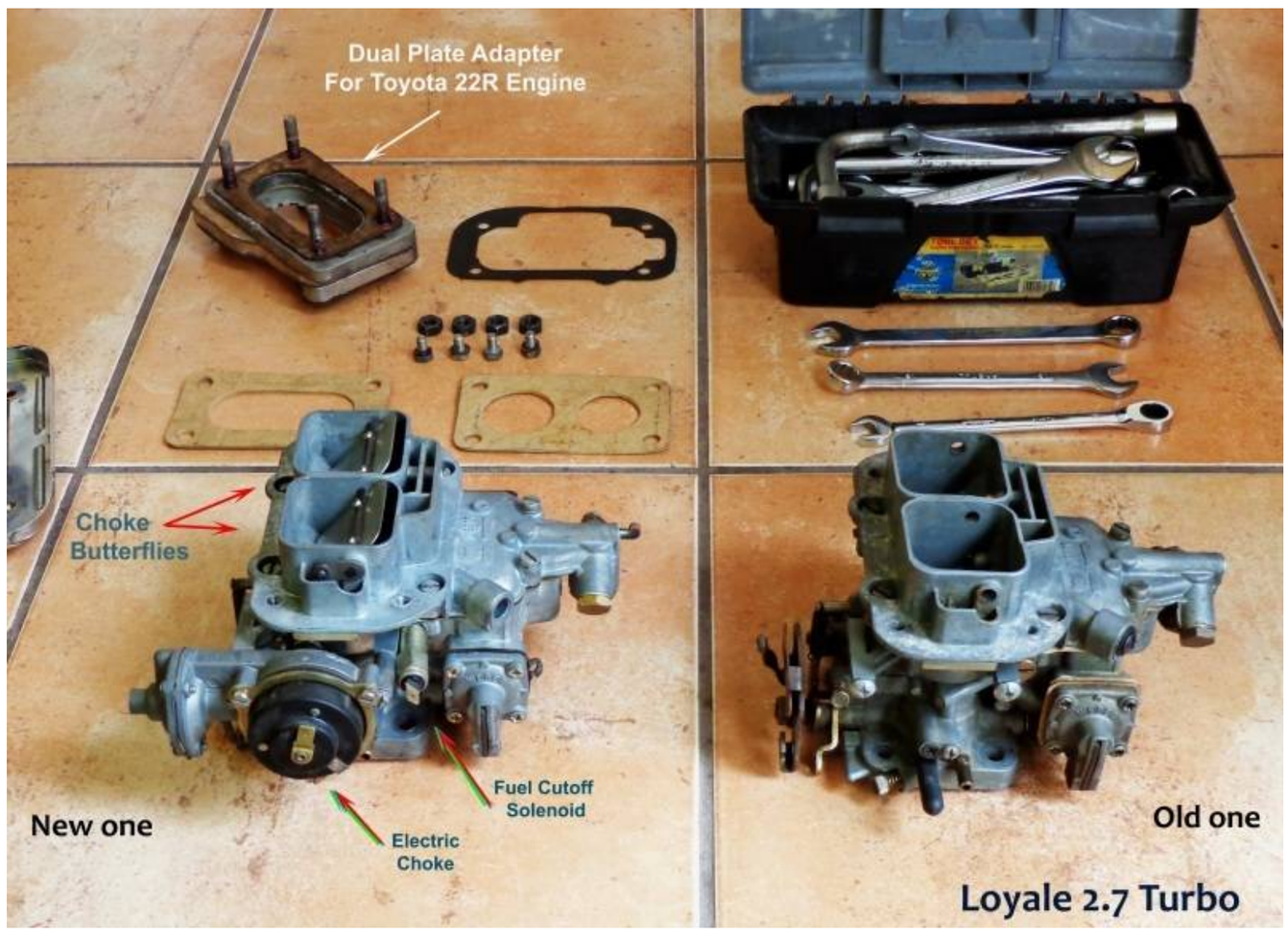
Roatán, Honduras.

Posted November 15, 2015

Report post

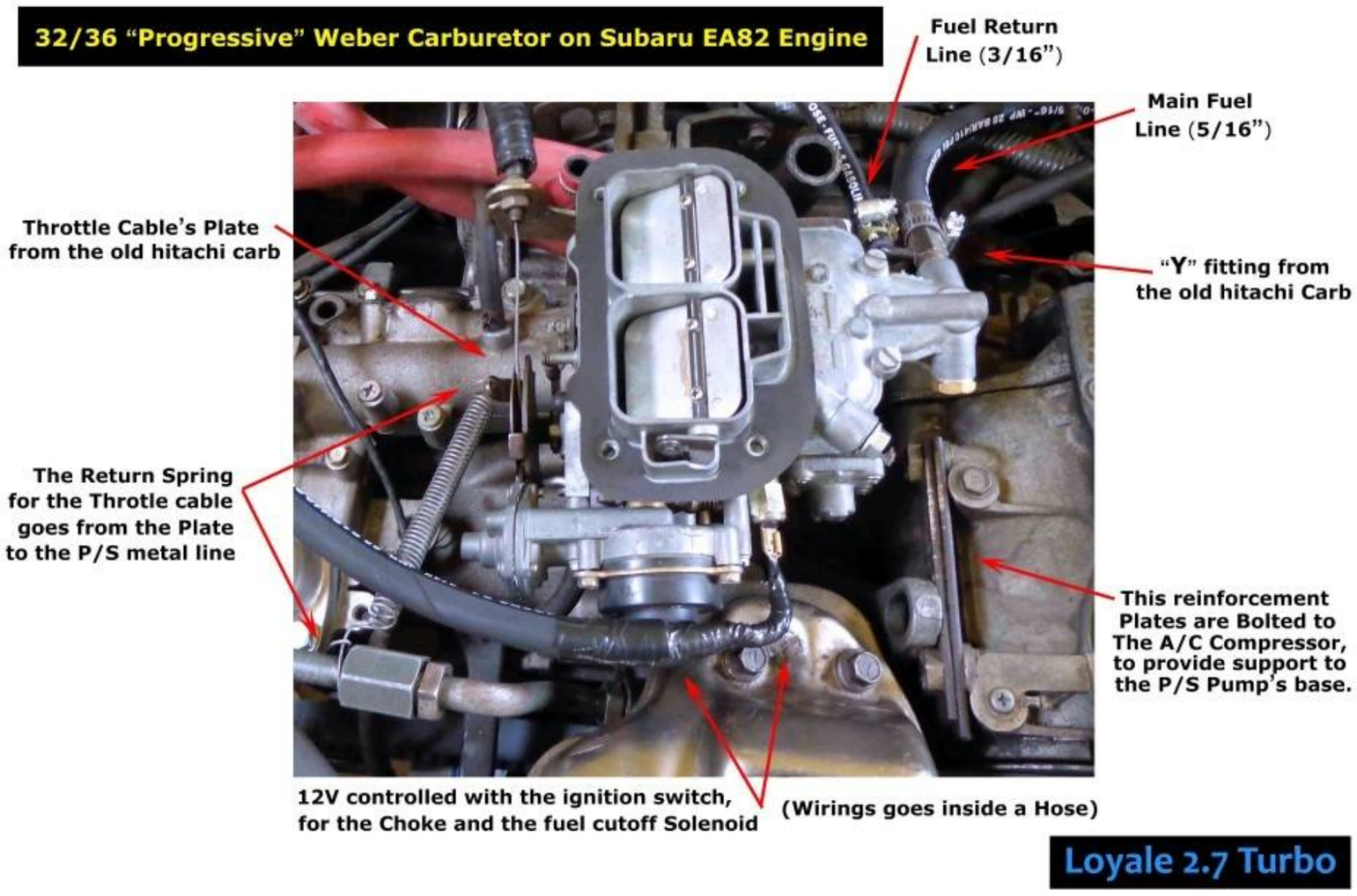
After all that, the engine Runs Flawlessly, Stable and Reliable!

As I explained at post Nº **3** above, I obtained **another** Weber 32/36 carburetor:

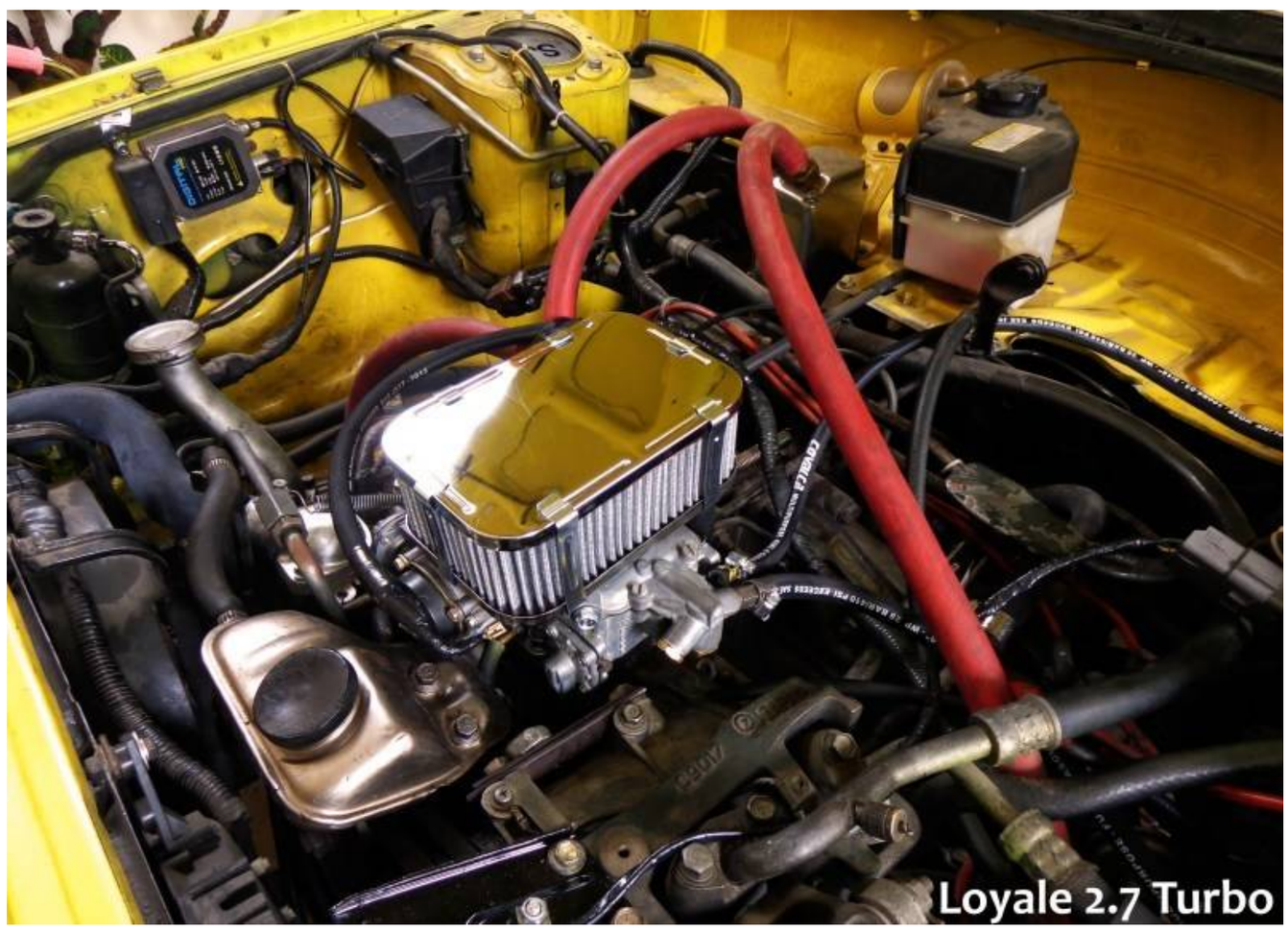


So I changed it after a **Decade**, to test the Choke and Anti-Dieseling Fuel Cutoff solenoid:

Photo of the finished install:



Here is how the new Weber looks, already installed and Running smoothly:



And This is How my 1985 Weberized EA82 Subaru Wagon Looks Now:

Named: The

"*BumbleBeast*"

Here's the **Build** Thread: ~► http://www.ultimatesubaru.org/forum/topic/122276-the-bumble-beast/

This is a **Video** of the Weber Carburetor, Working on my "**BumbleBeast**" Subaru:

Feel free to ask Any questions regarding the Weber Carb Swap,

on its Discussion Thread, which is Here: ~► http://www.ultimatesubaru.org/forum/topic/148641-to-27-loyale/

I Hope This Write-up will be Helpful. There are interesting comments regarding this writeup, on **Facebook**, like this one:

Jean-Noel Fosnaugh How to attach an Italian carburetor to your Japanese engine as explained by a Honduran for the benefit of the English speaking world with internet access. Subarus are awesome!!

4 min · 2

JesZek YES!!! I like that.

If you find this writeup, Useful, please let me know by hitting the "**Like**" Button below.

I only ask this as a **Motivation** to continue Sharing my work with you. Kind Regards.

13

GO TO TOPIC LISTING
Engine