

Torque Intake

Torque Intake by Skuzzle Motorsport

Mazda MX5 NC Fitting Guide

Please read:

Thank you very much for choosing to purchase the TorqIntake Induction System by *Skuzzle Motorsport*. Please read this manual thoroughly before installation and operation. We hope this instruction manual will be helpful to you whether you are a novice or a technician. Please keep this manual for future reference.

Disclaimer:

To the best of our knowledge, the information contained herein is accurate. However, *Skuzzle Motorsport Ltd* assumes no liability whatsoever for the accuracy or completeness of the information contained herein. All materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.

Installation:

Please take note that installation should be carried out by a qualified technician who is skilled with both the mechanical fitting and engine management. It is advisable that dyno load testing is carried out after installation to verify successful installation, especially when being fitted in conjunction with any other modifications.

Introduction

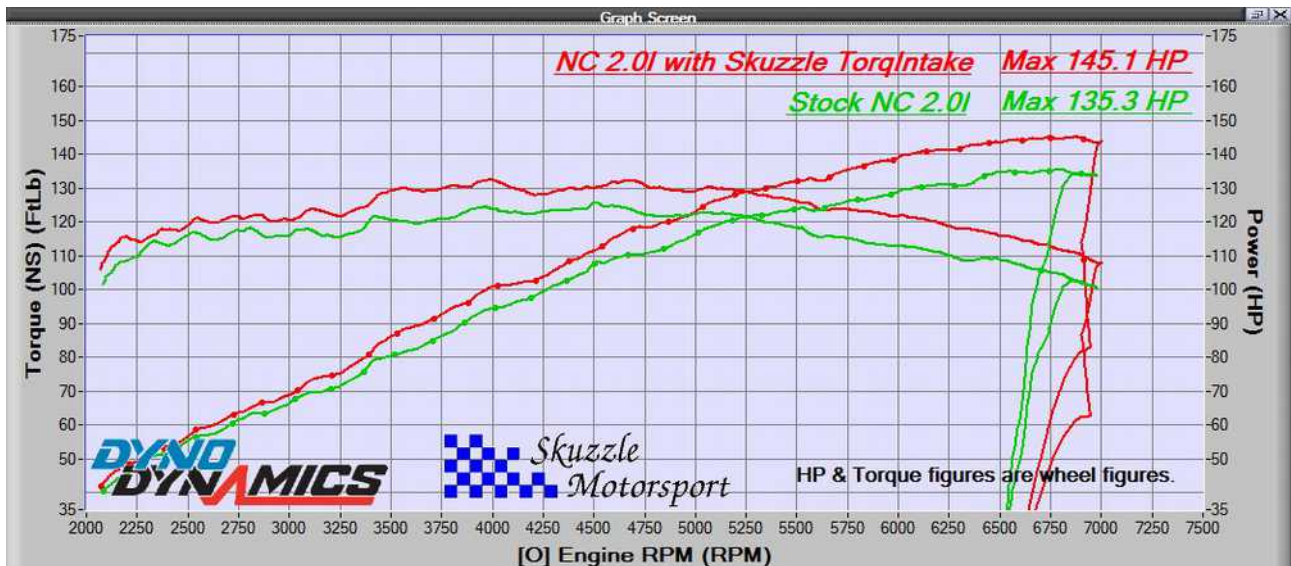
The *TorqIntake* induction system is the only known NC induction system to have been 100% designed on the dyno. Many hours of research, testing and development have gone into this system to produce a product which we are proud to put our name to.

The *TorqIntake* was built around the science of pulse waves. Pulses are generated inside the intake system. Because the length of the *TorqIntake* has been precisely tuned, the pulse is reflected back into the engine and amplified pushing a higher pressure of air into the cylinder drastically improving midrange torque.

The science doesn't end there either. The *TorqIntake* also makes use of 2 venturi effects. The pipe diameter is altered in 2 strategic places along the *TorqIntake* to maximise air velocity at higher rpm. This allows the *TorqIntake* to boast impressive gains to top end horsepower too.

Finally we have a velocity stack built into the high flow air filter. The idea of a velocity stack is to promote laminar flow (where the air enters the induction pipe smoothly and adheres to the intake pipe walls to reduce turbulence at high rpm).

The *TorqIntake*, designed at *Skuzzle Motorsport* is now professionally hand fabricated in the UK by RamAir using only the highest quality aluminium tube. The high flow air filter is manufactured by RamAir specifically for *Skuzzle Motorsport* and is made to the same standards as all other filter products produced by RamAir.



Dyno graph is provided as a guide of possible gains. These plots were taken on the same day, with the same car, before and after installation of the *TorqIntake* Induction System. It has been found that the 1.8l engines often get a slightly higher increase in performance than the 2.0l engine.

Parts List

Please check the contents of the package for all parts listed here. If anything is missing, please contact the vendor where you purchased this product.



As per the illustration above, please check the contents for:

1. The TorqIntake aluminium pipe (powdercoated black).
2. The RamAir filter.
3. The Silicone Couple
4. 2 x Hose clamps
5. M6x25 bolt, washer and locking nut
6. 2 x M4 screws

There may also be some other parts in the box, including packaging material and a selection of different fitting screws to be used in place of part 5 and 6 if necessary.

Basic Installation Steps

The installation can be broken down into just a few small steps. It is suggested that you read these steps in full before attempting installation, although some procedures are also laid out in full detail in the workshop manual for your car.

1. Remove front bumper
2. Remove stock air box and induction pipes.
3. Install TorqIntake Induction System.
4. Refit front bumper
5. Perform engine management reset
6. Perform after installation tests

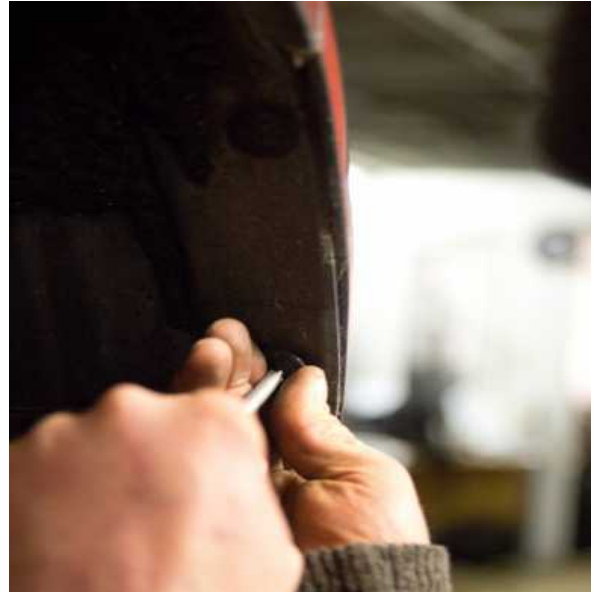
Tools required for installation

1. 10mm socket
2. 10mm spanner
3. Crosshead screwdriver
4. Flat screwdriver
5. 8mm socket or spanner
6. Sharp knife
7. A selection of Allen Keys (required by some models)

Step 1, Remove front bumper

Take your crosshead screwdriver and start by removing the trim clips under the front wheel arches which hold on the arch liner. You don't need to fully remove the liner, but you will need to remove all of the clips at the front of the arch liner. Anything further back than the suspension may be left in place.

The clips have a crosshead screw which should only need to be turned half a turn to allow the clip to pop out.



Remove the 8mm screws underneath the front bumper which fix the arch liner and undertray to the front bumper

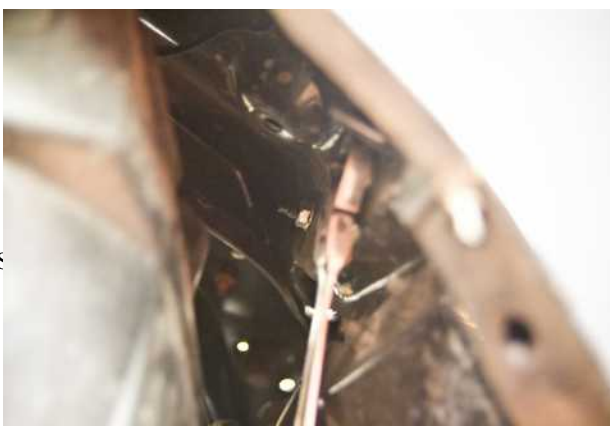


Using a flat screwdriver or pry, lever out the 2 small pieces of ABS plastic grill trim to reveal access to the bolts underneath.



Now undo the 10mm headed bolts which you have just revealed and then the several 10mm headed bolts along the top edge of the bumper (bonnet must be open to see these).

Pull back the arch liner on each side to expose the area underneath where the front bumper meets the wings. Underneath you will find a 1mm headed bolt and 2 10mm nuts. Undo these using either a socket or a spanner. At *Skuzzle Motorsport* we find it easiest to use a 10mm ratchet spanner here, although we are aware that not everybody has these special



tools and a normal ring end spanner will work just as well.

Once you have done this the front bumper should easily slide forward and off of the car. If you find that it wont slide forward, you have probably missed a fixing somewhere.

Step 2, Remove stock air box and induction pipes.

With the front bumper off you will see this view. Remove the 10mm headed bolts holding the induction pipe to the slam panel and the pipe should easily lift out of the way.



Next undo the hose clamp at the top of the air box and pry off the hose.



Undo the 2 clips retaining the 2 halves of air box together. They just lift up as pictured.



Now you can lift up the top half of the air box. Remove the connector on the MAF sensor by squeezing in the tab and gently pulling the plastic of the plug. Dont pull by the wires, as they are delicate and may break.



The bottom half of the air box is only held in with 2 10mm nuts. Undo these as pictured. At the bottom the air box is just firmly pushed into a retaining grommet. Once these nuts are undone, you can slide the top edge of the air box forward away from the studs and then 1 sharp tug upward to remove the bottom half of the airbox from the grommet at the bottom.



Now remove the plastic air guide located behind the front cross member. Most of the trim clips are easily accessible, but 2 are hidden underneath the headlights, you can remove the headlights to get to these, but we find it just as easy to put a small trim clip removal tool under these clips to pop them up.



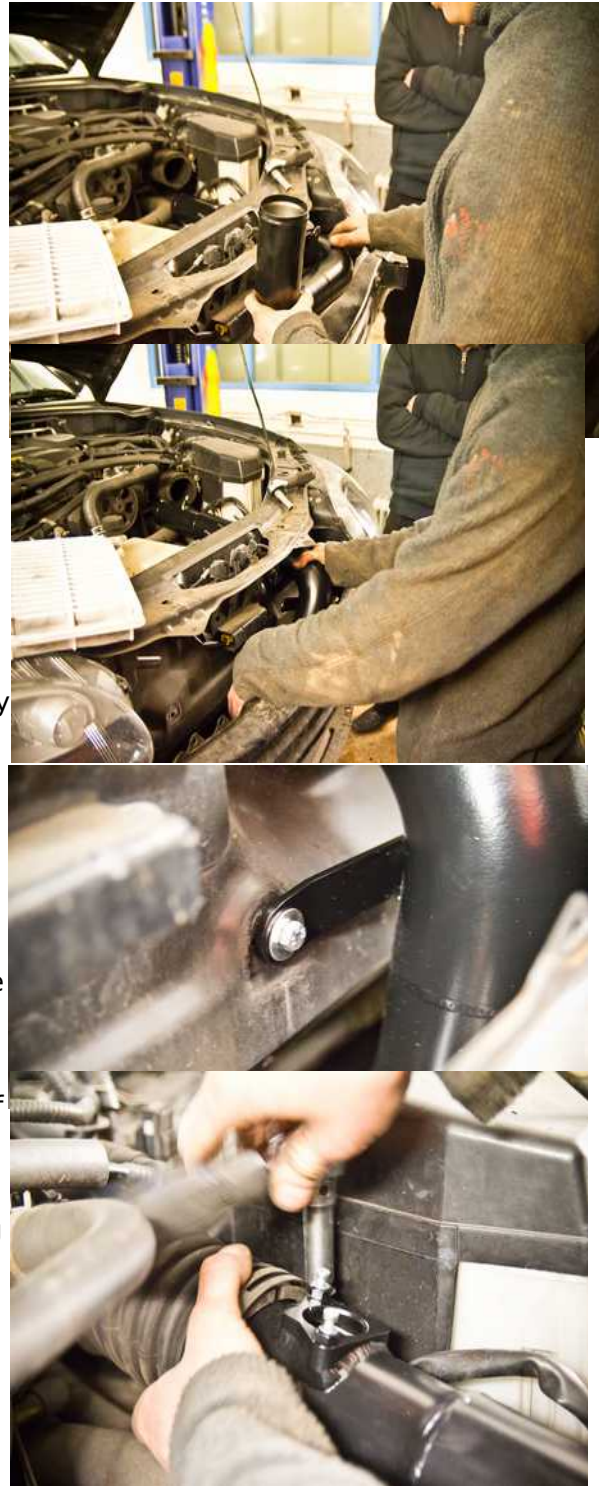
Step 3. Install the TorqIntake Induction system.

Unpack the aluminium TorqIntake Induction pipe. Slide the long end in through the hole in the front cross member where the original air feed used to be with the bend pointing up as shown.

Once it is most of the way in, you can twist the TorqIntake Induction pipe down so that the end of the pipe is in the correct location.

Using the supplied M6 bolt, washer and nut, loosely assemble it through the mounting tab and you will find it located nicely into 1 of the holes which held a trim clip for the plastic air guide which you have already removed.

Now insert the end of the TorqIntake Induction pipe into the hose up by the engine. You will need to pull this hose forward gently over the TorqIntake pipe. It may at first feel too short, but it has been designed this way to maintain the correct length of induction pipe. While holding in place, tighten the hose clamp, which may need a screw driver or a socket, depending on the year of the car. Now you can fully tighten the bolt on the mounting tab which you fitted just now.



Now remove the MAF sensor from the top half of the old air box, using a screwdriver.



Refit the MAF sensor into the TorqIntake Induction pipe MAF mounting boss, and refit the connector into the MAF sensor.

With a sharp knife, trim the air guide so that it fits around the TorqIntake Induction pipe and refit it. You will now have a spare trim clip as you will not be able to refit the one which has been replaced with the M6 bolt.



Now it is time to install the RamAir filter. Fit the silicone coupler to the filter base and tighten the first hose clamp. Put the second hose clamp over the silicone coupler and leave loose.



Fit the filter onto the end of the TorqIntake Induction pipe. Make sure it is pushed on all of the way so that the filter base is touching the end of the TorqIntake pipe. It is critical that this happens to maintain the correct calculated induction length. Now tighten the final hose clamp.

Your TorqIntake is now installed.



Step 4, Refit front bumper

To refit the front bumper is just the reverse of what you have done earlier in step 1.

Step 5, Reset the Engine Management.

Start the cars engine and check that the car runs ok. Do a visual check for air leaks and listen at the joins of the TorqIntake for any air leaks. Once you are happy that the car idles on its own, press the accelerator pedal down to maintain an engine speed of between 4000 and 5000 rpm.

Maintain this engine speed with the accelerator pedal until the engine speed drops on its own back to a normal idle speed of around 800 rpm.

This drop back to idle speed is indication that the ECU has reset itself. Switch the ignition back off and leave for 30 seconds.

The next time you start your engine, the ECU will begin the learning process again as if it were a brand new car. Over the course of a few thousand miles it will self learn the new induction system to give optimum results.

Step 6, Testing.

Although it is not vital, it is recommended that after installation, the car is tested fully on a rolling road dyno to ensure that it is performing correctly. It is advised that the dyno operator logs air/fuel ratio and ignition timing, while checking for knock or detonation.

The TorqIntake, through the nature of its design will change the air/fuel ratio in the engines combustion chamber, and the ignition timing. With other simple modifications, this is not known to cause a problem, however it is certainly worth checking if your car is extensively modified.

Please note : An hour or so of dyno testing while stress loading the car is desired to get true readings, as the ECU will be in the early stages of self learning.

If the dyno operator is unsure of a safe air/fuel ratio for the car, feel free to contact *Skuzzle Motorsport Ltd.*