



# **FILTERCHARGER® INJECTION PERFORMANCE KIT**

— INSTALLATION MANUAL —

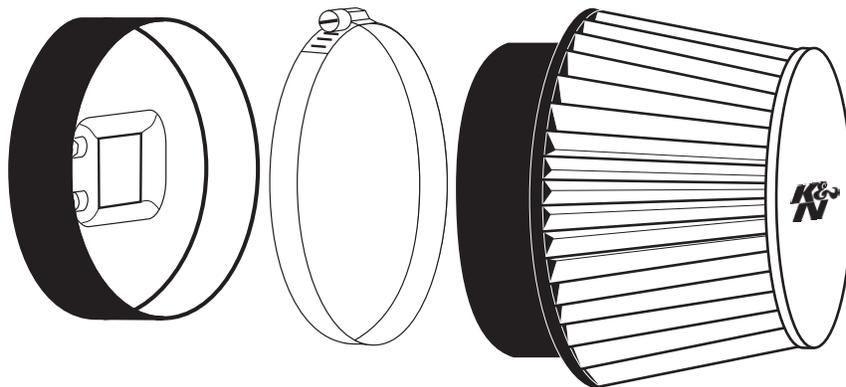
**Mazda MX-5 Miata**

**1990-1993**

**L4-1.5L**

**P/N 57-5001**

**CARB E.O. # D-269-3**



**INTAKE SYSTEMS FOR VEHICLES LISTED ARE 50  
STATE LEGAL. SEE [KNFILTERS.COM](http://KNFILTERS.COM) FOR CARB  
STATUS ON EACH PART FOR A SPECIFIC VEHICLE.**

**K&N Engineering, Inc.**

**1455 Citrus Avenue  
P.O. Box 1329  
Riverside, CA 92502**

**K&N Filtercharger® Injection Performance Kit #: 57-5001**

**Application: 1990-93 Mazda MX-5 Miata L4-1.5L engine**

**Air-flow sensing device: Nippondenso flap-door air flow meter**

**BASIC DESIGN CONCEPT**

This K&N Filtercharger® Injection Performance Kit (hereafter referred to as: **FIPK**) is designed to be less restrictive than the OEM air filter system. Low restriction air filters allow the engine to have better throttle response as well as more power throughout the RPM band. K&N has designed this **FIPK** to exactly replace the OEM factory air cleaner case, with a precision engineered aluminum adapter and all the necessary mounting brackets, bolts, screws and nuts. Additionally, it is important to note, if the O.E.M. air cleaner case has emission control devices and/or hoses, that all these parts will be installed as necessary to the new assembly.

Each **FIPK** has a specially designed filter with woven cotton fabric sandwiched between 2 layers of wire mesh screen. The screen and fabric combination creates a grid-like effect which actually straightens out the incoming air as it passes through the filter. In addition to the filter, this kit has a uniquely designed adapter with a built-in velocity stack. This velocity stack is beneficial in further smoothing out the incoming air flow and allowing for a less restrictive entry into the engine. (Air moving in a straight direction moves faster than tumbling air thus creating an increase in air flow). See the figure below.

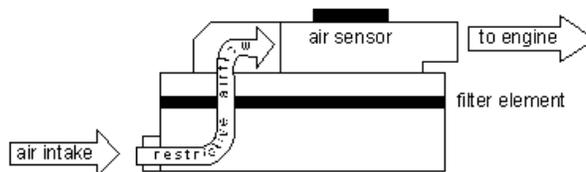
**AIR CLEANER DESIGN EFFECTIVENESS**

To design an effective performance air filter assembly, two factors must be considered: the air filtering element and the air filter adapter. On fuel injected, computer controlled vehicles, there can be a substantial gain in performance by using a less restrictive air filter assembly. Original equipment air filter assemblies tend to be more restrictive than the performance enthusiast would like, therefore, by changing to the less restrictive K&N **FIPK**, the air flow potential of the engine can be fully maximized without jeopardizing important emission standards. (see figures below)

**EMISSIONS LEGAL**

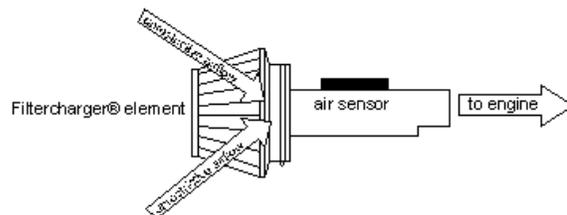
The **FIPK** is street legal for use on the emission controlled vehicles that it was originally designed to fit. These kits replace the original air filter case and do not eliminate the emission controls. The high temperature label contains the EO # assigned by C.A.R.B. that will allow a vehicle installed with the FIPK to pass the visual inspection at an authorized Smog Inspection station.

**BEFORE F.I.P.K.**



**OEM air filter assembly**

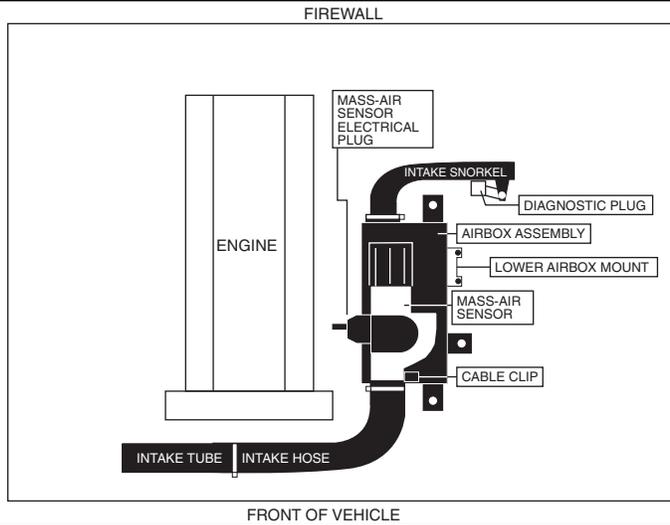
**AFTER F.I.P.K.**



**FIPK assembly**

# INSTALLATION INSTRUCTIONS

CAUTION!! PLEASE READ CAREFULLY AND COMPLETELY BEFORE BEGINNING WORK ON YOUR VEHICLE. K&N suggests that you have a repair manual available for reference during installation of the K&N Filtercharger® Injection Performance Kit.



## MAZDA MIATA ENGINE COMPARTMENT

### INSTALLATION

- 1) Disconnect the vehicle's negative battery cable.
- 2) Remove the intake snorkel, which is held with one bolt and one clamp.
- 3) Replace the bolt to hold the diagnostic hook-up plug.
- 4) Carefully remove the electrical plug connector at the mass-air sensor. (held in place by a small spring-wire clip) Move the wire out of harms way until re-assembly.
- 5) Carefully remove the cable clip that is mounted at the rear of the mass-air sensor and move the corrugated tubing out of the way.
- 6) Unbolt the airbox assembly from the body. It is held in place with two bolts and one nut.
- 7) Loosen the intake hose at the connection to the metal intake tube in front of the engine.
- 8) Carefully remove the airbox and mass-air sensor as a unit.
- 9) Remove the mass-air sensor from the airbox which is held by four nuts and one bolt.
- 10) Remove the studs that held the mass-air sensor to the airbox. If you thread two nuts on to the stud, and tighten them together, you can then thread the stud out with the bottom nut.
- 11) Install the adapter, with the stock gasket onto the mass-air sensor, using the allen bolts provided. (see fig. 1) Use a thread locking compound and do not over-tighten the bolts.
- 12) Install the two "L" brackets on the adapter with the hardware provided. Do not tighten at this time. (see fig. 1)
- 13) Remove the lower airbox mount from the fenderwell which is held in place by two bolts.
- 14) Install the specially insulated metal heat shield into vehicle. The two holes together match up to the holes in the body where the lower airbox mount was bolted. Loosely install a stock bolt in the hole closest to the firewall only.

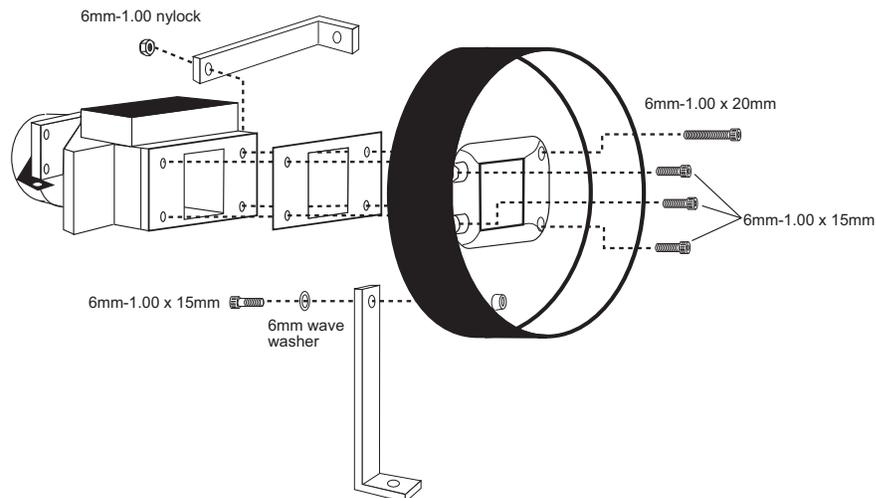


fig. 1

- 15) Install mass-air / adapter assembly into vehicle. Do not hook up the intake hose at this time. The two "L" brackets will line up with the remaining holes in the heat shield. Use a stock bolt for the long "L" bracket, and a short allen bolt and nylock nut for the short "L" bracket. Position the mass-air sensor so that there is no binding of the "L" brackets and tighten all bolts on the heat shield and adapter.
- 16) Re-connect the intake hose to the metal intake tube in front of the engine.
- 17) Install the "Z" bracket on the small angle bracket that is connected at the back of the mass-air sensor. The bracket goes to the existing stud that held the airbox in place. (see fig. 2)
- 18) Re-install cable clip onto mass-air bracket.
- 19) Route the main electrical cable under the mass-air sensor and behind the filter adapter and plug it in to the mass-air sensor.

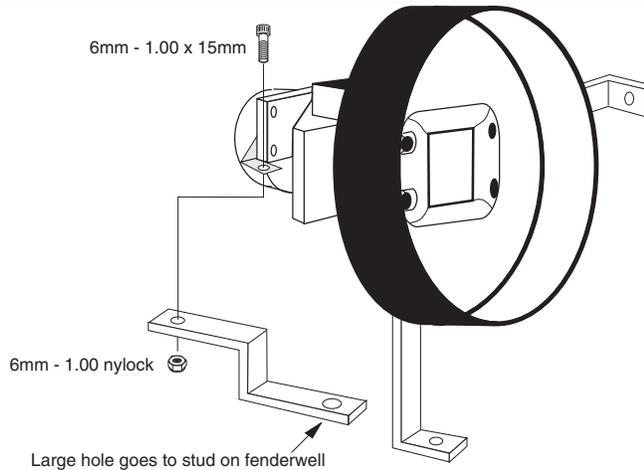


fig. 2

- 20) Install K&N Filtercharger® onto adapter, do not over-tighten hose clamp!
- 21) Re-connect battery cable. Double check to make sure everything is tight and properly positioned before starting vehicle.
- 22) The C.A.R.B. exemption sticker, attached, must be placed in a visible area under the hood, so that an emissions inspector can see it when the vehicle is required to be tested for emissions. California requires testing every two years, other states may vary.

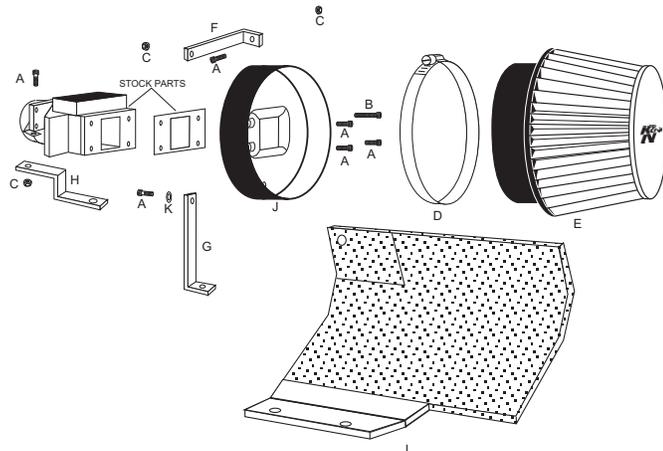
## ROAD TESTING

Start the engine with the transmission in neutral or park, and the emergency brake on. Listen for any air leaks or odd noises. If there are air leaks, make sure the hose connections are secure. If there are any odd noises, check for the cause and repair before proceeding. The K&N Filtercharger® Injection Performance Kit will function identically to the factory air filter with the exception of being slightly louder than stock and much more responsive. If all preliminary checks are okay, then a road test is necessary. Listen carefully for rattling or other odd noises and fix as necessary. If the road test is fine, you can enjoy driving as normal with the added response and power. We suggest that the Filtercharger® element be checked periodically for dirt. This is now very easy due to the open element configuration. If the filter material is overly dirty, service it according to the instructions that are in the Recharger service kit, part number 99-5050 or 99-5000. If you have any questions or problems, inquire at your nearest K&N dealer, or direct to K&N Engineering at (909) 684-9762.

**\*FREE K&N DECAL To register your warranty, please see us online at [knfilters.com/register](http://knfilters.com/register). FREE K&N DECAL\***

## PARTS LIST

description	quantity		
A 6mm-1.00 x 16mm allen bolt	6	07818	
B 6mm-1.00 x 20mm allen bolt	1	07852	
C 6mm-1.00 nylock nut	3	07553	
D size 104 hose clamp	1	08697	
E Filtercharger® element	1	RF-1009	
F short "L" bracket	1	07879	
G long "L" bracket	1	07884	
H "Z" bracket	1	07886	
I insulated heat shield	1	074061	
J die-cast filter adapter	1	08792	
K 6mm wave washer	1	08174	



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