

DescriptionINTERSECTED CONE-SHAPED AIR FILTER FOR AN AUTOMOTIVE
INTERNAL COMBUSTION ENGINE

Technical Field of Invention

This invention relates to an air filter, particularly
an intersected cone-shaped air filter that can focus airflow
into an automotive internal combustion engine.

Background of Invention

Current automotive technology needs automotive engines
of high performance. A highly performanced automotive engine
requires that fuel must be proportionately mixed with clean
air and the mixture produced can quickly reach the internal
combustion charge.

There are two options for the accomplishment of the
conditions cited above. The first is to minimize fluid
friction, and the second one is to exert a driving force on
the mixture. It can be performed only by designing
appropriately the aerodynamic construction of the air
filter.

The object of this invention is thus to provide an air
filter wherein a driving force is performed due to the
focusing of the airflow on the midmost streamline. Based on
its shape, i.e., intersected cone, the air filter is
referred to CYCLO FILTER.

Brief Description of the Invention

This intersected cone-shaped air filter is designed for
the purpose of filtering the air flowing into an automotive
internal combustion engine and focusing it to the midmost
streamline. Due to its intersected conical shape, the
effective area of this air filter's cylindrical surface is

advantageously larger than that of previously adapted filters.

The larger the effective area of this air filter's cylindrical surface is, the more the mass of the air-fuel mixture that will flow into the combustion chamber. And the driving force resulted in due to the focusing of air flow on the midmost streamline will increase the velocity and the mass of the air-fuel mixture within the combustion chamber. Consequently, it will be generated by the automotive engine.

Brief Description of the Drawing

Figure 1a is a perspective view of the air filter presently invented with body being partially opened.

Figure 1b is a longitudinal cross section along line A-A of the embodiment in shown in Figure 1a.

Figure 2a is a perspective view of the modification of the air filter presently invented with body being partially opened.

Figure 2b is a longitudinal cross section along line A'-A' of the embodiment in shown in Figure 2a.

Figure 3 is a schematic diagram showing the path of the airflow from the atmosphere into an automotive internal combustion engine.

Detailed Description of the Invention

Figure 1a and 1b show a basic construction of an intersected cone-shaped air filter (1) comprising a hollow body (2) of specified thickness the side of which dips downwardly 2° to 7° with respect to vertical axis. The filter body is made up of symmetric longitudinally folded filter paper materials whose thickness governs the thickness of the air filter body (2).

A clamping ring (3) is fixedly disposed along the outer periphery of the upper and the lower ends of the filter body (2) for strengthening the filter body construction.

Figure 2a and 2b show the one of the modifications of the cone-shaped air filter, which have specifics hollow body (2'). The outer wall body of the air filter shape is cylindrical and the inner wall body of the air filter shape is intersected cone.

Figure 3 is a schematic diagram showing the path of the air flow from the atmosphere into an automotive internal combustion engine. Air from the atmosphere is directed to an air filter (I) through the air filter body. Owing to the shape of the filter, the air flows through the centre of the smaller end of the filter into the mixing chamber (II). The air and fuel which have become air-fuel mixture after entering the mixing chamber, flows further into the combustion engine (III). The driving force resulted in due to the focusing of the airflow on the centre of the smaller end of the filter will increase the velocity and the mass of the air-fuel mixture within the combustion chamber.

The preferred embodiments described within this specification are intended only for illustration, not to limit the scope of invention. Modification of any kind is always possible for them skilled in the art as long as it is still within the scope of invention and claim.

CLAIMS

1. An intersected cone-shaped air filter (1) for focusing air flow within an
5 internal combustion engine which comprises:
a hollow body (2) of specified thickness whose side dips 2° to 7° with
respect to a vertical axis and is made up of symmetric longitudinally folded filter
paper material whose thickness governs the thickness of the air filter body (2),
a clamping ring (3) which is fixedly disposed along the outer periphery of the
10 upper and the lower ends of the filter body (2) for strengthening the filter body
construction; and
the way out for clean air is on the top of intersected cone,
wherein the cone-shaped air filter produces a driving force that increases
the velocity and the mass of the air-fuel mixture.
- 15 2. An intersected cone-shaped air filter that has a hollow body (2) whose outer
wall of the air filter body shape is cylindrical and the inner wall of the air filter body is
an intersected cone.
- 20 3. An intersected cone-shaped air filter that has a hollow body (2) whose inner
wall of the air filter body shape is cylindrical and the outer wall of the air filter is an
intersected cone.
- 25 4. An intersected cone-shaped air filter, which has a hollow body (2) shape as
described in any of claims 1 – 3 made from the porous material as a filter media.