

Aqua Silencer: A Review

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ABSTRACT: *An Aqua Silencer is employed for control of emission and noise in automobile exhaust. By using activated carbon, perforated tube and outer shell it's constructed. Or in other words Aqua Silencer may be a modified version of a conventional silencer aimed toward the reduction of toxic emission from the exhaust of an IC engine into the atmosphere and also to scale back the noise that's produced by damping methods which involves water and hence the name. Day by day the pollution goes on increasing. The most source of the pollution is Exhaust from automobiles and industries. Hence, to scale back these pollutants from Exhaust of Engine a replacement technology is introduced called Aqua silencer. An Aqua silencer may be a device wont to filter the pollutants produced from automobiles like CO, UBHC, NOx and Lead. It uses the charcoal layer, perforated tube and water for its working. Thanks to water, the noise is additionally getting reduced than open environment. Due to this it gets named as AQUA SILENCER.*

KEYWORDS: *Aqua Silencer, Charcoal, Emission Control, Noise, Water, Pollutants.*

INTRODUCTION

We all know that the car industry plays a serious role in causing pollution, so for reducing air also as sound pollution we are using Aqua Silencer. The exhaust gases released from engine are carbon monoxide gas (CO), CO₂ (CO₂), laughing gas (NO_x), sulfur dioxide (SO₂), Unburnt Hydrocarbons (UBHC). These toxic gases are very harmful for environment, human health. Aqua Silencer is employed to scale back emissions and noise and also reduces its harmful effects with the assistance of activated carbon, lime water.

An Aqua Silencer is basically managing control of discharge and commotion in car exhaust. By utilizing actuated charcoal, punctured cylinder and external shell it is built. A water silencer is fitted to the fumes line of motor. The actuated charcoal channels the unsafe sulfur and nitrous substance created from the motor. Sound delivered submerged is less hearable than it delivered in air. This basically in light of little sprockets in water particles, which brings down its sufficiency in this manner, brings down the sound level. On account of this property water is utilized in this silencer and henceforth its name Water SILENCER. It is tried in single chamber 4-stroke diesel motor the commotion and smoke level is significant not exactly the customary silencer. A water silencer is used to control the clamor and discharge in ic motors. The motivation behind why we go for water silencer is, in today life the air contamination makes actual sick impacts the human creatures and furthermore the climate (figure 1).

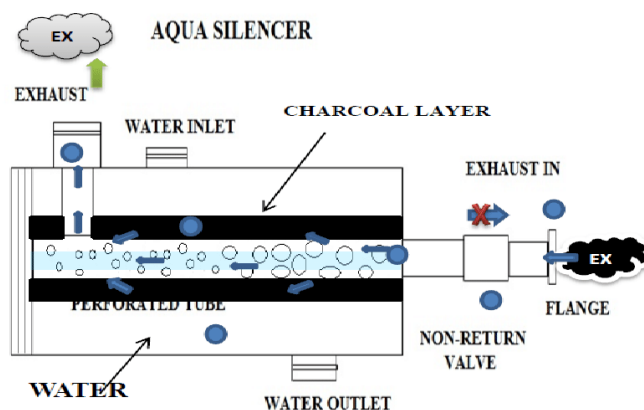


Figure 1: Aqua silencer[1]

The fundamental commitment of the air contamination is vehicles delivering the gases like carbon dioxide, unburned hydrocarbons and so forth in request to maintain a strategic distance from this sort of gases by presenting this water silencer, it is fitted to the fumes line of the motor, Sound delivered submerged is less hearable than it delivered in air. This essentially due to little sprockets in water particles, which brings down its plentifulness accordingly, brings down the sound level. The emanation can be constrained by utilizing the enacted charcoal layer and it is profoundly permeable and forces additional free valences so it has high ingestion limit. So ingest the gases from the motor and delivery significantly less situation to the climate. The commotion and smoke level is significant not exactly the traditional silencer, no need of exhaust system also, simple to introduce.

The main contributor of pollution is automobiles releasing gases like CO₂, unburned hydrocarbons, etc. In order to chop down on emission of those gases, we will use an aqua silencer. It's fitted to the pipe of the engine. Sound produced under water is a smaller amount audible than in atmosphere[2]. This is often mainly thanks to presence of small sprockets in water molecules, which lowers its amplitude and thus, lowers the sound level[3]. The emission are often controlled by using the activated carbon layer and Lime water. Activated carbon layer is very porous and possess extra free valences so its high absorption capacity and lime water chemically reacts with the exhaust gases from the engine and release much less polluted gases to the environment. The noise and smoke level are considerably but the traditional silencer; there's no need of a converter and it's easy to put in.

The exhaust gas from the engine cylinder is enters in to the dual filter silencer through perforated tube. Through the perforated tube gas first enters in to the first filter of the silencer. Perforated tube may be a special tube having different diameter sections. So, the perforated tube converts High Mass bubbles in to Low Mass bubbles[4]. At the primary filter lime water reacts with toxic gases & reduces its concentration. Then they pass to the secondary filter contains charcoal which again purify the gases. A charcoal is very porous and possesses extra free valences. So, it's high adsorption capacity.

The aqua silencer reduces emission noise because, the sound produced in aqua silencer under water having less amplitude than the sound produced in open atmosphere. These happen because of in water molecules there are small sprockets which lowers amplitude of emission gases and lower the sound level. In Aqua silencer the most component perforated tube which consists of number of various diameter holes[5]. Generally these are 4 set of holes on perforated tube. The charcoal layer which is pasted over perforated tube can control the emission using the activated charcoal and highly porous extra free is increasing on our earth due to major increase within the pollution. Pollution is extremely serious on our earth. So it is required to unravel these problems by taking various serious attempts. Hence to scale back these pollutants from Exhaust of Engine a replacement technology is introduced called Aqua silencer[6]. Sound prevalence so these layer having high absorption capacity. It control the noise & emission in an IC engine. It's fitted at the exhaust of the pipe; sound produced under water is less hearable than sound produced within the atmosphere[7]. The emission of gases are often controlled by using the activated carbon layer & lime water. The noise and smoke level is considerably but the traditional silencer; there's no need of a converter and it's easy to put in. In this silencer, the Charcoal and Water is employed so it's called hybrid aqua silencer, and it is beneficial in automobile, industry, DG sets & DG machines, Marin and Boats also so, it is understood as hybrid universal aqua silencer. Aqua silencer is straightforward to put in and there's no need of converter. Aqua silencer is one of the important methods for effective reduction of toxic gases and noise[8].

Finally, the exhaust gases escape through the opening in to the atmosphere. The dual filter silencer is simpler within the reduction of emission gases from the engine exhaust gas using water and lime stone mixture. By using water and lime stone mixture the rear pressure will remain constant and therefore the sound level is reduced. By using water as a medium the sound are often lowered and also by using limestone in water, we will control the exhaust emission to a greater level. The water contamination is found to be negligible in twin filter silencer, because the quantity of acidity level in twin filter silencer is expected to be below the damaging acidity. It's smokeless and pollution free emission and also rock bottom. Hence twin filter silencer reduces both noise and pollution. The dual filter silencer's performance is nearly equivalent to the traditional silencer. The water silencer framework is plan for supplant generally utilized single unit silencers in motor with its thin structure and less weight. It assume a significant part in charge the commotion and outflow of gases from engines. Air contamination causes perilous actual impact on the human body, animal and environment. The primary motivation to utilize water silencer is on the grounds that now a day's air contamination is expanding rapidly. This framework decreases the risky fumes gases from the auto.

These outflow constrained by the initiated charcoal layer around punctured cylinder and lime water. The charcoal layer having high ability to assimilate emanation gases from engine. These type charcoal layer with lime water responds artificially with outflow gases and change the compound design of emanation gases. The smoke or emanation gases and clamor level in water silencer is exceptionally not exactly the generally utilized silencers.

LITERATURE REVIEW

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In Aqua silencer the most component perforated tube which consists of number of various diameter holes. Generally these are 4 set of holes on perforated tube. The charcoal layer which is pasted over perforated tube can control the emission using the activated charcoal and highly porous extra free is increasing on our earth due to major increase within the pollution[10].

CONCLUSION

The aqua silencer is simpler within the reduction of emission gases from the engine exhaust using perforated tube, lime water and charcoal. By using perforated tube the rear pressure will remain constant and therefore the sound level is reduced. By using perforated tube the fuel consumption remains same as conventional system by using water as a medium the sound can be lowered and also by using activated carbon in water we will control the exhaust emission to a greater level. Thanks to use of water as a medium sound reduces these system having pollution free emission and smokeless. These system is extremely cheap. These system is employed for both four wheelers and two wheelers. It plays important role in industries.

By using activated carbon and Perforated tube it effectively eliminates the pollutants within the exhaust gases and reduces the Noise, also back pressure remains constant, fuel consumption is same that of conventional silencer. It is a smokeless and pollution free emission. It has been experimentally observed that the aqua silencer is successfully effective in reducing emission of gases from the engine exhaust. By using water as a medium, the sound levels are reduced and by using activated carbon in water, it produces almost pollution-free and smokeless emission and is additionally cheap considering future use. The aqua silencer's performance is nearly equivalent to the traditional silencer. It are often widely utilized in industrial engines and with a touch improvisation, in heavy weight vehicles. This project analyzed the smoke content of the exhaust gas before and after treatment and it had been found that there's a substantial reduction within the emission as acknowledged by the test results.

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