# COOLING SYSTEM OF TODAY IS EFFICIENT

There's a Reason for High, Narrow Type of Radiator.

OLD MISTAKE CORRECTED

While Cooling System Requires Little Attention, An Occasional Cleaning Will Help It.

One of the most thoroughly efficient units in the modern motor vehicle is the cooling system. The wehicle is the cooling system. The average car owner pretty nearly forgets the existence of this part of the car's anatomy except for the rare occasion when something goes wrong in it. Now, it is generally possible to forestall any failure in the cooling system if certain simple rules of maintenance are fellowed, and it is to suggest how this may be accomplished that the present article is written.

While there are today two distinct

While there are today two distinct methods of keeping the motor within the necessary temperature bounds, we shall consider first the water cooling, which is used on all except two ing, which is used on all except two
American cars. In the water cooling
system the liquid is contained in
jackets around the cylinders, and it is
kept in motion constantly in order
that it may remain at a temperature
low enough to perform its function.
In the main, water cooling systems
are all very much alike. The water
in the tackets circulates around the

in the jackets circulates around the cylinders, picking up the excess heat and then going to the mp of the radiator, whence it flows downward to the bottom through cells or tubes, getting rid of much of its heat on the way. A fan is provided to suck air

Two Types Explained. Water cooling systems are divided into two distinct types, known re-spectively as thermo-syphon and pump. The thermo-syphon depends for its effectiveness on the working of a simple natural law. Hot water is lighter than cold and rises to the top. In the thermo-syphon system the water near the base of the hot water jackets becomes heated first' and, following this law, rises to the top, displacing the cooler water there. In this way a circulation is set up; the hot water rises, flows down through the radiator, where its heat is carried away. Obviously with this method of keeping the cooling water moving the passages and tubes of the water avester must be of generous. water system must be of generous size and the radiator must be located well above the water jackets, so that the outlet pipe will slant upward, the inlet pipe showing little deviation from the straight.

The thermo-syphon water system has the great advantage in simplicity; in fact, nothing could be simpler; it in fact, nothing could be simpler, it follows directly the working of a natural law. When properly designed, the system is quite adequate to ordinary demands. It is particularly effective on small engines. The matter of design is paramount with respect to this type of cooling system. In the therms-syphon cooling system obstructions are more serious than in the pump system because there is not the positive flow of water which tends to push minor obstructions of foreign matter out of the way. The thermo-syphon system must be kept

In the pump cooling system a cen

Two Kinds of Radiator.

Two Kinds of Radiator.

There are two different methods of making this core, one known as cellular, the other tubular. In the cellular type the air is drawn through a set of tubes, while the water flows down through the spaces among the types. In the tubular, type the vater.

Shorted armature windings on most types. In the tubular type the vater.

it is undergoing the cooling process.
It used to be common to find that the car manufacturer had not allowed enough radiator area to give really efficient cooling. Today this is not so, and the cooling systems of standard cars will be found entirely adequate to their work.

quate to their work.
In fact the tendency today is perhaps rather on the side of too much cooling. All cooling is waste, neces-sary to an extent, but waste never-theless. If it were not for the necessity of maintaining the film of oil in the cylinders the engine would be more efficient without the cooling

feature. it is possible, however, to maintain the temperature of the engine at the exact point where maximum efficiency is secured without endangering the lubrication, which is vital to op-eration. Within the last few years our engineers have evolved a system of thermostatic control, which keeps the engine at its highest temperature consistent with safety.

How It Works. Thermostatic control consists of a valve fixed in the water line and so designed that when the cooling water falls to a certain predetermined point, thus shutting off the circulation of water, the latter is quickly brought up to efficient operating temperature, when the valve opens again to permit the cooling demanded by safety.

The cooling system does not need any very great amount of affention. It should be thoroughly cleaned out

at least once a year and it is advis-able to take the radiator to a firm specializing in this work for cleans-ing. As much as four pounds of muck are often taken out of one radi-

Many car owners find it advantageous to fill the cooling system with a strong solution of washing soda and water and then run the engine for BREAKING GROUND FOR BIG ADDITION TO PLANT OF C. L. BOSS AUTOMOBILE COMPANY.



SNAPPED AT NINETEENTH AND COUCH STREETS LAST WEEK AS GRADING TEAMS BEGAN WORK. This new addition will add a two-story brick and concrete building, 60 feet wide by 200 feet long, extending clear from Nineteenth street to Twentieth, to the present quarters of the C. L. Boss Automobile company, Mr. Boss retains his present quarters in Washington street. The new building will include ample service facilities and a complete shop for Hudson, Essex, Chalmers and Maxwell cars. It will cost approximately \$40,000 and is to be rushed to completion.

deposits and when the system is drained and flushed out two or three times with clear water a noticeable improvement in operation is inevitin through the tubes of the radiator, assisting in the dissipation of the heat. Without the help of the fan it would require a much greater area of radiator to get rid of the heat.

PENNSY CANS BILLBOARDS

No Advertising Signs Permitted

Along the Highways. Highway Commissioner Sadler has sued orders to county road superin-ndents throughout Pennsylvania to move advertising signs from the 10,335 miles of state highway. He holds such displays within the legal limits of a state road route against the law. The superintendents must immediately remove these signs, some of which overhang the road and others of which are placed on poles and fences owned by the state. A statement issued by the department says complaints have been received from tourists that some of the signs, imi-tative of the regular detour signs, have misled them in the night. Cansigns have especially been a nulsance

THIS TELLS THE EASIEST WAY TO CLEAN SET.

Motorists Warned Under No Circumstances, However, to Use Emery Cloth.

In the pump cooling system a centrifugal pump, driven from the engine, forces the water around the system, thus maintaining the circulation needed for proper cooling. As long as the engine is running the pump is operating and the water is circulating. The pump system is more expensive to install, which explains why a majority of our American cars use thermo-syphon cooling.

Both types of cooling systems operate on the same general principle. The radiator is located at the front of the system and has a tank at the top and another at the bottom. The core of the radiator is the section lying between the two tanks, and it is this which we commonly think of when we speak of the radiator; it looks like a honeycomb.

Two Kinds of Radiator.

It is difficult to get at commutators as a rule due to the small opening at the commutator end of the generator of starting motor. This requires that some simple tool be made to get the commutator through one of the brush holder openings. The casiest way to do this is to take the cover of a cigar box or some thin wood stock and make a small paddle about four or six inches long and about half the width of the brush holder.

To use this simple arrangement for cleaning generator commutators first remove the most accessible generator brush and then wrap a strip of No. 90 sandpaper over the end of the paddle and use it through the brush holder when the engine is running as one would use a hand lathe tool. This will theroughly clean the commutator end of the generator of starting motor. This requires that some simple tool be made to get the commutator through one of the brush holder openings. The casiest way to do this is to take the cover of a cigar box or some thin wood stock and make a small paddle about four or six inches long and about half the width of the brush holder.

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down through the spaces among the tubes. In the tubular type the water flows through tubes and the air is drawn through tubes and the air is drawn through the spaces between.

In operation the water flows into the tank at the top of the radiator, where a series of baffle plates distribute it all over the width of the core, through which it flows downward into the tank at the bottom. If it were not for these plates the water it were not for these plates the water ing of the starting motor commutator would be likely to flow down in a can be done when the motor is driv-stream through one small section of ing the engine. A dirty motor comthe core and would not get a chance to become thoroughly cooled.

The shape of the radiator has considerable to do with its efficiency in cooling. The high, narrow radiator is to smooth the faces of the brushes are cut and not smooth. If this condition is found, it is best cooling. The high, narrow radiator is to smooth the faces of the brushes, as more efficient for the reason that the water has a longer distance to go while it is undergoing the cooling received by taking a cut off of it is a

To Clean Off Carbon.

Clean off carbon with a cloth dipped in gasoline, or a brush may be used. Touch up the points of plug with emery cloth, but do not touch emery to glazed porcelain, as it scratches and makes it soot up all Some must be replaced.

BUYERS TO FLOCK TO NEW YORK SHOW.

Latest Improvements in Tractor Engineering to Be Demonstrated This Month.

cities during the last several weeks, M. B. Mawby manager of the Interna-tional Farm Tractor and Implement Exchange, believes that the exposition scheduled for New York on October 15 will open most auspiciously with a thoroughly representative line of tractors and implements. This exposi-tion is to be one of the eight perma-nent industrial exhibits of the Merchants and Manufacturers' Exchange in Grand Central Palace, each of which will occupy an entire floor, 50,000 square feet area. Manufacturers and selling agents of farm tractors, harvesting machinery, agricultural waterworks, silos and the like will be represented.

like will be represented.

The fame of this enterprise already is spreading throughout the world. and the Grand Central palace is des-tined to become a mecca for buyers, both domestic and foreign. It is the first time such a venture has been attempted, but its success is abso-lutely assured by the caliber of the backing of the enterprise. To this

ARMY SPEED LIMITS.

WASHINGTON, Oct. 4.—The service division of the motor transport corps has prescribed maximum limits of speed, both in town and county, for all motor vehicles under its jurisdiction; a case of emergency furnishing the only exception. Instructions also provide that speed plates giving the maximum speed allowed be stencifed and installed in every motor vehicle; that violations will be noted, disciplinary promptly taken and measures promptly taken and that local speed regulations will not be violated. The speed regulations, as stated in the order are:

Ť		In	Out of
I			Town.
Į.	Vehicle Type- M.	P.H.	M.P.H.
è	Trucks, class AA	12	20
*	Trucks, class A	12	15 -
٠	Trucks, class B	8	14
٠	Ambulances	12	18
‡	Light delivery %-ton capacity or less		20
‡	Small passenger ve-		
‡	Motorcycles without	10	25
t	sidecars	18	35
Ì	Motorcycles with	18	30
ł	Heavy passenger ve-	18	35
•	44404040	A 35	- 67-67

quiries where farm and machinery and other commodities are desired Concerns both large and small, whose products will stand the minutest examination and comparison, may secure space in the various permanent expositions at a very moderate price per annum. Manufacturers, dealers. per annum. Manufacturers, dealers, jobbers, engineers and others visiting New York will constantly stream in and out of the huge building to inspect the latest and most improved devices and machines in the partier. devices and machines in the particu-lar lines in which they are interested, and this will afford an opportunity for manufacturers to interest cus tomers in their products by direct

Tire Fillers. Some operators of light motor trucks have tried the experiment of using tire fillers in their casings.

WHITE TRUCK USEFUL IN HAULING PEACH CROP.



Too bad this isn't an Oregon picture. Lack of ability to handle its crop re suited in loss of most of the southern Oregon peach crop this year. The photo is from Maryland, where 37 White trucks are employed by one firm alone to handle its products. The picture was taken on the largest peach orchard in the United States, that of Harrison's Nurseries, where two White trucks this season have transported the 60,000-bushel crop from

This is a distinct mistake, because it is simply going bock to solid tires, after having paid the extra cost of pneumatics. Filler simply makes a solid tire of the pneumatic, with a slight gain in resiliency over the ordinary solid.

CADILLAC ZIPS ALONG FAST

Goodyear Equipped Car Makes 85-Mile Speed in Races.

A performance which indicates that the attainment of high speed in auto-NEW YORK, Oct. 4.—Having made held on specially constructed speedaccomplished by O. W. Smith of Thomasville, Ga. In a Cadillac car equipped with Goodyear cord tires, Smith won the free-for-all 100-mile race held at Pablo Beach Labor day, at a speed of 85 miles an hour.

PENNSYLVANIA RUBBER CO. IS BUILDING MODERN HOMES.

Plans Made for 600 Residences to Be Erected and Sold to Workmen at Plant.

Construction of homes for employes of the Pennsylvania Rubber company great clearing house will come in- at Jeannette, Pa., on a 120-acre patch purchased by the company especially for this purpose, will begin in the near future, according to word received by local vacuum cup tire dealers. It is the plan of the large rubber corpora-tion to construct a "factory city." In common with hundreds of large the country, the Pennsylvania Rubber company has for the past two years

faced a serious shortage of housing facilities for its workmen. The remarkable growth of the makers of vacuum cup tires, say fac-tory reports, has brought a steadily increasing army of expert workmen

dious residences of stucco and brick, in 1886. and are sold to the workmen on such extremely liberal terms that they are Thirty-three more are in the course of construction and will be ready for occupancy not later than November.

Streets are being graded and improved, and it is within the present lans to continue proved, and it is within the present plans to continue until a minimum colony of 500 homes has been completed set down in the midst of the finest industrial developments in the

Strap Jack to Footboard.

Undoubtedly the jack is one of the nost difficult tools in the car's equip-nent to carry. If it is carried loosely

BUICK REPAIRS

EXCLUSIVELY 32,000 sq. ft. floor space. Live or dead storage. Cheap rates.

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RANK WIGGINS RECALLS EX-PERIENCE OF 1893.

Secretary of Los Angeles Chamber of Commerce Tells of Long-

fair at Chicago in 1893 as the representative and booster of Los Angeles ton."

Kokomo, Ind., was not so very far

Haynes was giving the original Haynes a tryout on the main street of the town. The machine closely re-sembled one of the four-wheeled

with people out to see the 'funny contraption,' and several had been invited to take a ride. Someone asked me to get into the car, and I did. I only rode a half a block or a block, but even that is something to look back on now as a wonderful experience.

"I don't suppose Mr. Haynes himself in those early days was able to the county and making seven counts at each point, one for every day of the week. The count is not made on consecutive days, but at various periods from April to November, so as to arrive at average conditions. This census is taken to determine the durability of certain types of pavement, according to the

When Frank Wiggins, secretary of itself the necessity of furnishing suitable homes.

Accordingly, it purchased approximately 20 acres immediately south of the plant, upon which it is erecting modern homes. These homes are not of the type commonly known as "factory houses," but are modern, commoditions, and the plant of the type commonly known as "factory houses," but are modern, commoditions.

"I don't suppose Mr. Haynes himself in those early days was able to picture in his mind how great would be the development of his ideas in the next 26 years; certainly his wilders in the next 26 ye be proud of that little old contrap-Wiggins was back at the world's tion' now in the archives

GOOD ROADS SAVE BIG MONEY

old days as traveling salesman for a \$25,000 Daily Estimated Economy in Milwaukee.

Haynes was giving the original Haynes a tryout on the main street of the town. The machine closely rescounty. Wisconsin, save \$25,000 a day sembled one of the four-wheeled to the people who use them. This is phaetons or sulkies of the day. It the estimate of the county commis-

## "Not One Cent for Repairs-Not One Minute Off the Job!"

Yakima Fruit Growers' Association praises Atterbury truck

"Our 2-ton Atterbury has been in constant service over all kinds of roads, carrying an average of 4 tons most of

We have not had to spend one cent for repairs—nor has the truck been laid up a single minute. "On hills it will out-pull any truck of equivalent rating,

This letter from the Yakima Fruit Growers' Association, Yakima, Wash., shows why truck owners are looking not at first cost, but at the service and earning capacity

of the trucks they buy. If you are looking for the kind of a truck that will give this kind of service, come in and let us show you the

Atterbury Truck Sales "Truck Specialists"

Distributors for Oregon, South Washington, Western Idaho, Northern California

334 Oak Street, Portland

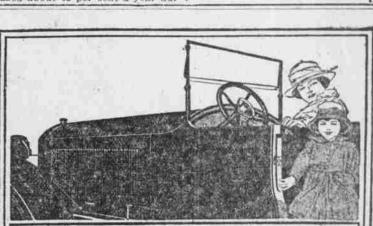
Broadway 354





and bicycle chains showing in the Statistics are based on a census of the traffic taken periodically during underworks.

"Of course, the street was lined the last four years. The census is with people out to see the funny conmade by selecting 52 points scattered



YOU WILL find that the Lib-erty owner is especially proud of two things:

One is the beauty of the Liberty; the other, the difference in the way in which it rides and drives.

Its beauty, of course, needs no demonstration, for its distinctive, individual design is quite apparent.

And if you will ride with him, or with us, for just ten minutes, you will be convinced that the difference he speaks of is not born of his enthusiasm-but a real and vital difference in the Liberty itself.

W. H. Wallingford Co.

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