

GOOD BRAKES BEST INSURANCE FOR CAR

Up to Motorists to Keep Them in Good Condition.

OIL ON BANDS DANGEROUS

On Long Hills, Brakes Should Be Conserved by Making Use of Motor as Brake.

Good brakes are about the best form of life insurance the motor car driver can have. In fact, they are about the most important part of the automobile. A pretty poor sort of a motor will run the car, but to stop it requires the best there is to be had; "pretty good" will not do in an emergency. You need a motor to get there, but without good brakes you may get too far.

There is nothing the matter with the brakes on most cars when they come from the factory. There will be little the matter with them at any time if they are given the proper care; if oil is put on where it is needed, and kept off where it is not needed, and if worn parts are renewed in time to prevent an accident. The brakes will hold the car as long as they are in condition; they are sufficient for all needs so long as they are in order.

Up to the Driver. It is the driver's business to see that they are in condition before going out, even if he cannot take time to look after the motor. It may be a matter of life and death before the garage is reached again.

Every car has two sets of brakes, operating independently of each other, and when they should be in shape to hold the car at a standstill, or, in chauffeur phrasing, "slide the heels." The average owner is careless about the brakes.

Drivers should learn to use first the foot and then the emergency brake on long hills. This alternation allows each in turn to cool off, for where there is so much friction heat cannot be avoided, and only by alternating the brakes is the safety from burned-out linings. Also the driver should learn how to use the motor as a brake. By engaging a lower gear and cutting off the ignition the engine, under compression will retard the speed sufficiently so that moderate use of the foot brake will be enough for safety. Likewise safety calls for slow speed down a long hill as less heat is developed, or at least it is developed more slowly.

Look Out for Oil. Another serious cause of brake failure is oil. As a rule this comes from the differential leaking through the axle housing to the hub and thence overflowing to the brake drums. This may be the result of enthusiasm in lubrication, which prompts a too liberal quantity in the bearings.

Then when the car turns off the crown of the road the oil overflows the casing and the only way to get the axle housing. And sometimes the play of parts acts like a pump and sends the oil out along the axle. The remedy lies in using grease oil which does not remedy it put a felt washer in the axle housing.

This consists of a long, thin strip of hard felt wound around the shaft. Wind it, beginning at the wheel end, in a direction opposite to the normal motion of the shaft. It should be fastened to the shaft with shellac and bound with cord in several places. It need not cover more than six or eight inches of the shaft.

NEW MODEL DISTINCTIVE NATIONAL SEXTET HAS LATEST EUROPEAN IDEAS.

Engine, Result of Two Years' Work, Declared Triumph; Body Style Noteworthy Feature.

A new model, called the National SEXTET, is announced by the National Motor Car & Vehicle corporation.

This car is a six of 130-inch wheel base and an improved overhead valve engine that has been in development for two years. Though the bore and stroke of the engine are only 3 1/2 x 5 1/2 inches, it develops 71 horsepower at 2600 revolutions per minute, showing the remarkable gain of 57.8 per cent over the previous National six of the same size. America for this remarkable increase, aside from improved design, are found in extremely fine and close workmanship and a new oiling system that forces oil to every vital working part under pressure, including the overhead valve rocker arms, in a manner comparable to the circulatory system of the human body.

For starting in extreme cold weather the carburetor, a Rayfield, is provided with an auxiliary electric heating device that warms the initial charge of fuel to a point of ready vaporization before passing it to the carburetor.

Moreover, the engine has been designed especially for burning low-grade fuels. The intake manifold, being contained in its entirety within the detachable cylinder head, where it is entirely surrounded by heat, and provided in addition with an exhaust super-heated hot-spot at its point of entrance. As a result, low-grade fuels perform with the snap and pep of high-test gasoline.

In appearance, the left side of the engine is absolutely blank with all operating accessories grouped on the right, where they are illuminated for inspection at night by a motor light set in the reverse side of the dash. The chassis is as advanced in design as the engine, being a built-in automatic lubricating provisions. Wherever possible grease cups have been replaced by oilless bushings, eliminating a fertile source of squeaks and rattles. The rear axle is also new, embodying in one-piece pressed steel housing of unusual strength and light weight.

A new refinement in the chassis is found in an apron over the gas tank at the rear that conceals this unsightly object, with its usual coating of greasy dust. Built into the tank is a 1 1/2-gallon emergency reservoir controlled by a small valve on the front of the rear seat.

The lines of the new National SEXTET are refreshingly new and advanced, promising to inaugurate a new vogue in body styles. They incorporate the latest ideas of European coach builders, as gathered by Colonel William Guy Wall, chief engineer of the National company, during his recent sojourn in Europe.

His conception departs entirely from the level edge type so much in evidence of late, and presents a character and individuality all its own, from the distinctive design of the radiator to the sharply defined con-

tour of the rear seat. A striking feature of the body, and one that contributes materially to its distinctive character, is the shape and contour of the front fenders, which are of the individual type, closely hugging the wheels, and independent of the running-board.

A new and advanced method of body mounting is employed that permits lowering the body seven inches, materially adding to fleetness of line, and giving exceptional strength and solidity. All doors are provided with capacious pockets for blue books, clothes brushes and the like, except the left front door, which contains a built-in and fitted tool compartment. Standard equipment includes motorator, windshield cleaner, Hartford shock absorbers, both front and rear, power-driven tire pump, transmittal rack, large size electric horn, Warner 75-mile-an-hour speedometer, one-man top lined inside, with glass rear window cord tire and screw-jack of new and improved type.

SHOW CARS HARD TO OBTAIN But Chevrolet Dealer Rented Cars From Their Owners.

So difficult is it to get automobiles at this time that many dealers are unable to exhibit in the auto show in the long held on the Pacific coast. The Chevrolet dealer at Stockton, Cal.,

HERE IS ONE OF PORTLAND'S MOST YOUTHFUL "SEDAN-ETTES."

Miss Lois DeLay, daughter of W. R. DeLay of the D. C. Warren Motor Car company, slighting from her new Peerless sedan, a recent gift from her daddy.

found a solution to the problem, however. He went out among Chevrolet dealers and had cars to place in the Stockton show.

As a result he was the only dealer to get the cars for the show period he was required to furnish other cars in charge of the maintenance of motor and he further had to pay all expenses on the used cars supplied.

EXPERTS WITH NEW FIRM HOWARD-WHITE STAFF MADE UP OF EXPERIENCED MEN.

Large Plant Established in Indianapolis for Manufacture of New Passenger Car.

Associated with D. McCall White and E. C. Howard, who have just taken possession of a large modern plant in Indianapolis for the production of a new passenger car, are several men of long experience and high standing in the motor industry.

M. J. Moore is treasurer of the new company. He was formerly connected with the Packard Motor company, manufacturing company, Detroit, he was controller of the Chevrolet Motor company at Flint, and auditor and later product manager of the Miami Cycle company of Middletown, Ohio. He served as captain in the motor transport corps in charge of the maintenance of motor vehicles. He was associated for five years with the Packard Motor Car company of Detroit, holding important positions in the manufacturing, engineering and chassis. He went from the Packard to the factory management of the Hal Motor Car company of Cleveland. He later became factory manager of the Hook Wire Wheel company.

J. W. Applin, chief engineer, came with Mr. White from the Cadillac Motor Car company, where he was in charge of the design of the eight-cylinder Cadillac in 1914. In 1915 Mr. Applin designed, under Mr. White's supervision, the 12-cylinder aircraft engine, which was one of the important designs on which the liberty engine was based. Previously to his Cadillac association Mr. Applin was in the engineering department of the Olds Motor works, Lansing, and the Maxwell company, Detroit.

C. B. Spreng, purchasing agent, was formerly purchasing agent of the Otis Steel company and assistant purchasing agent of the Winton company, both of Cleveland, Ohio. He recently returned from France, where he served as a first lieutenant.

Leo N. Burnett, advertising manager of the Howard-White organization, went to the Cadillac company in 1915 from the newspaper field. He became head of the Cadillac advertising department and served in that capacity during the last two years, except for a few months spent in the navy.

J. P. Robertson has been appointed works engineer. After completing his technical education at the Glasgow Technical college, Glasgow, Scotland, he became a marine engineer, testing submarines and torpedo boats for the English government, and later for the United States. He comes to Indianapolis from the Otis Motor Car company, where he was chief draftsman for two years. Before that he was superintendent of the Johnson Gear company, San Francisco, and chief engineer and superintendent of the American Explosive & Chemical company of Pittsburg, Pa.

L. A. Menges, chief draftsman, is a new recruit to the Howard-White organization who received his training with the Cadillac company and who was closely associated with Mr. White when he produced the eight-cylinder Cadillac.

W. A. Houser has joined the company as head of the technical division of the sales department. He has been engaged in similar work at the Cadillac company during the last few years, with the exception of several months in the army.

To Turn Engine Over.

To avoid accidents when cranking the car by hand, place the thumb against the index finger and take the handle between the four fingers and the palm of the hand. In this way the hand opens readily if a back kick occurs. Also, always crank up, never down.

AMERICAN CARS BIG DEMAND ABROAD

Value of Automobile Exports Grows in Five Years.

TIRE MARKET ALSO LARGE

Exports of Cars, Trucks, Parts and Tires Two and One-Half Times Bigger Than in 1914.

That American exports of automobiles have increased to the point where, during the past year, one automobile was exported from the United States on the average of every nine minutes day and night, Sundays

and holidays included, is shown by a detailed study of American automobile exports recently issued by the American Exporter. The average time elapsing between shipments of passenger cars was 12 minutes, while the average between shipments of commercial cars was 40 minutes.

These shipments mean that every minute of the day and night \$284.25 was spent by foreign purchasers of American automobiles and parts, including tires. Of this amount, \$42.05 was spent every minute by foreign purchasers of American tires, while \$263.20 was spent every minute on passenger cars, trucks, etc.

The total value of American automobile exports, including both passenger cars and trucks, amounted during the fiscal year ended June 30 to \$75,947,767, while exports of parts and tires amounted to \$25,850,818. The total value of automobile exports for the fiscal year ended June 30 was over two and one-half times that of the fiscal year 1914. In the past fiscal year there were 15 times as many commercial cars exported as in 1914 and their value was 25 times as great.

The number of passenger cars exported during the year was 45 per cent greater than in 1914 and their value was 80 per cent greater. The increase in exports of automobiles is almost as significant as that of automobiles, since the value of these exports during the fiscal year 1919 was over six times as great as in 1914.

Some countries spent almost as much during the past year in this country for tires as they did for automobiles. Thus in the case of Argentina, for every dollar spent in the purchase of automobiles \$2 cents was spent for tires and for every passenger and commercial car exported to Argentina, approximately \$1,198 was spent on tires. Incidentally the value of Argentine purchases of American tires during the past fiscal year was \$3 times that of 1914.

The value of our exports of tires to the Dutch East Indies was 30 times that of 1914. For every automobile exported from the United States to the Dutch East Indies \$28 was spent on tires. In the case of British India the value of tire exports was 131 times that of 1914.

The American Exporter has compiled an automobile census of foreign countries showing the estimated number of automobiles in the principal foreign countries as of July 1, 1919. This estimate is based on the most recent information obtainable.

Latest Export Figures. In arriving at these figures use was made of such sources of information as the official statistics of automobile registrations and licenses issued in various foreign countries, the import and export statistics of these foreign countries and the statistics of production of foreign countries which manufacture automobiles.

While exact figures have not been obtainable in every case, it is believed that the figures below are approximately correct. The figures are as follows:

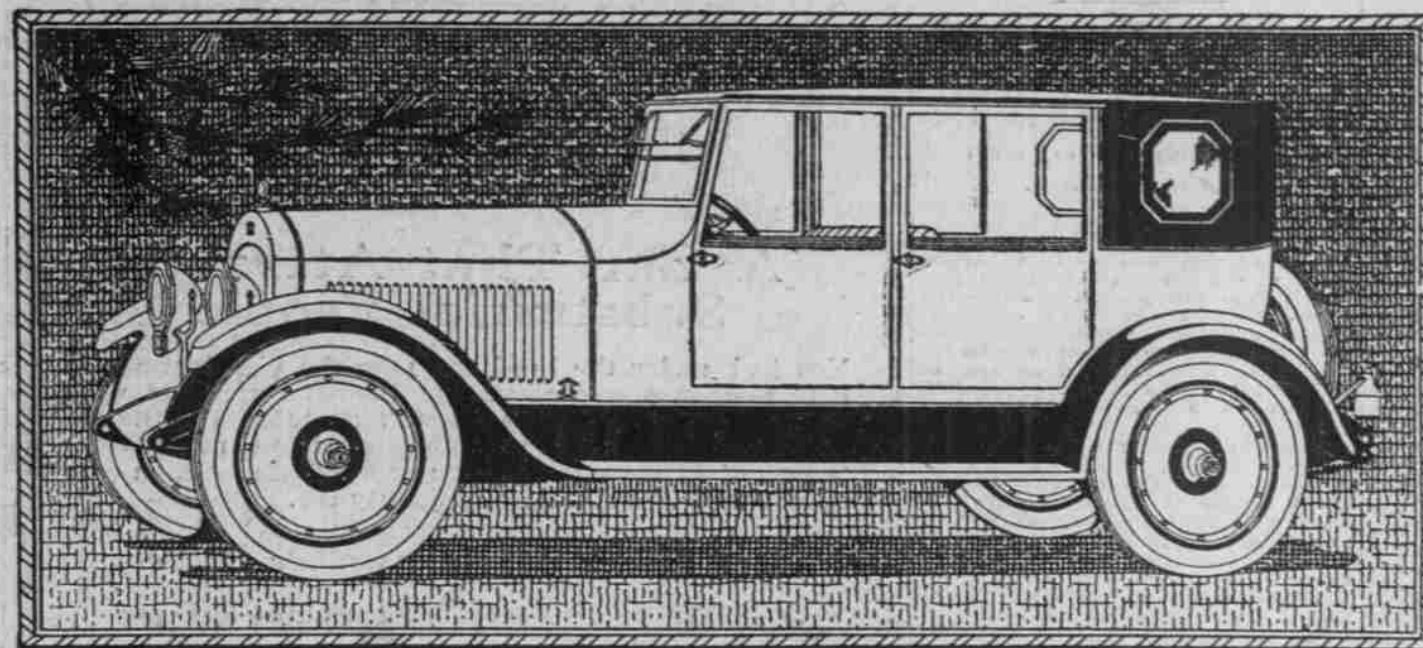
Algeria	5,000	Honduras	110
Argentina	25,000	India	4,200
Australia	25,000	Italy	25,500
Austria	19,000	Jamaica	3,500
Belgium	7,000	Japan	3,000
Barbadoes	700	Martinique	540
Bolivia	12,000	Mexico	13,000
Brazil	10,000	Morocco	1,000
Br. E. Africa	3,000	Newfoundland	500
Br. Honduras	11,500	New Zealand	14,000
Br. Guiana	700	Nicaragua	150
Canada	300,000	Panama	3,200
Chile	5,300	Paraguay	100
China	350	Philippine Is.	9,230
Cochin China	1,500	Portugal	1,000
Cuba	1,000	Roumania	2,300
Czechoslovakia	20,000	Russia	2,000
Denmark	1,500	Salvador	100
Dutch E. Ind.	12,000	Spain	14,000
Dutch Guiana	1,000	Sweden	1,200
Ecuador	400	Switzerland	6,140
Finland	2,000	Turkey	800
France	200,000	Tripoli	700
French Guiana	1,000	Uruguay	500
Germany	75,000	Turkey	500
Greece	15,000	Venezuela	1,500
Guatemala	300	Asia, Africa	1,000
Hawaiian Is.	6,340	Total	1,384,250

Removing Dents. The amateur mechanic is often puzzled as to how to remove a dent from a tank. Solder a tire valve to the filler cap and then pump air into the tank, meanwhile tapping the dent around the edges of the dent with a leather mallet. The pressure of the air in the tank will push the dent out, even with the rest of the surface with the help of the mallet taps.

There's a Touch of Tomorrow

in All That Cole Does Today

Turning Future Ideals Into Present Achievements



Creations Which Anticipate Coming Styles

A FORECAST of the future is the Cole Aero-EIGHT. In it, ideals which seemed intended for fulfillment only at some future time have become realities of the present.

It has ushered in a new vogue in motor car patterns. It has determined the trend which future styles will take.

Radiating a new beauty and dignity, the Aero-EIGHT elevates motor car designs for the first time to a plane commensurate with their advanced mechanical attainment.

Increased Performance—Exclusive Designs

THERE is an indescribable charm about the Aero-EIGHT. Its winsome grace of line, its dashing attractiveness are a constant pride and delight—its rugged power a source of continual satisfaction.

Averaging 15,000 miles on tires, developing 80 horsepower, economical in its use of fuel, light in weight, fleet as the wind, tenacious in its adherence to the road and reposeful in its luxurious comfort, the Aero-EIGHT gives a new interpretation to motor car possibilities.

The new All-Season models introduce for the first time flush panel construction and represent

It furnishes a new incentive to ownership; it affords a new satisfaction in possession. It gives to motoring a new significance.

Five years devoted exclusively to the building of eight-cylinder cars by one of the first two American manufacturers to produce an Eight, are responsible for its development.

Ten years of planning ahead—ten years dedicated to the creation of the new, the advanced, the original—give it the maturity of experience and sound judgment.

a welcome departure from the traditions in enclosed car design.

The open cars are refreshingly different from the staid conventions of the past.

The harmony of color, richness of fabrics, taste in the selection of appointments denote the worthy craftsmanship of these distinguished cars.

So original in conception that their counterparts are not to be found in current design, they turn future ideals into present realities and stand as noteworthy additions to Cole's significant creations in advanced motor cars.

Prompt Deliveries Assured—Prices Guaranteed Against Reduction in 1919

Northwest Auto Co.

"The Line Complete" Alder at Eighteenth St.

Cole Motor Car Company, Indianapolis, U.S.A.

Creators of Advanced Motor Cars

AUTO EXPRESS IS SUCCESS

NO TERRITORIES ARE REMOTE WHERE HIGHWAYS LEAD.

Where Neither Rail Nor Waterways Can Tap Inland Reservoir, the Truck Express Finds Its Field.

Highway transportation is one of the oldest forms of modes in existence. It has had its development through centuries of evolutionary progress, from the times when the pyramids were new up to the present time.

Transportation over the highways from the dawn of Egypt's greatness was carried on by caravan over the desert, over a trackless waste, which may not be called a highway, as we know it, but a highway nevertheless.

This was followed by the pack mule, the horse, and finally we come to the great Roman highways through which Rome conquered the world. From the birth of our nation, transportation over the highways has been rather slow in advancement, for, with the horse as the pulling power, distance could not be covered economically or swiftly, and so we were

forced to turn our attention to transportation by water and the later development by rail. These methods served well in building up an inland empire and in blazing the way for civilization in its march to the Pacific.

But while our waterways and our railroads opened the way, they were limited to capacity and were soon overburdened by the commerce which followed in their wake. Then, too, the network of rails, which reached across the continent, passed by and failed to reach vast areas of our country, which later years were to furnish the great bulk of our food products.

So after centuries, when we had thought of transportation over the highways as a thing that was dead and past recovery, the motor truck comes on the scene and not only re-creates this method of transportation in a time of need, when three-fourths of the world was carrying on a war for liberty, but breaks all records in smashing time in war and peace time hauling.

The advance of the Germans was halted by the despatch in which troops and ordnance went forward on the battlefields of France. Food products which were raised on ways and waterways reached tide water via the motor truck, so that we were able to produce more and send more to our armies and our allies. The war is now over, but still we must feed the world, and if we are

going to do it, and in addition lower the cost of living, we must induce the farmer to cultivate and produce more. He will do it if we can furnish the means of transportation.

You have the means when you apply the motor truck—when you organize and operate a rural motor express. If you will do this and give its management as much intelligent thought as you would any business, you will not only succeed but you will have rendered your nation a service which is worth while.

Motor transport days are being held in many states and hundreds of cities throughout the country. Many have already been held and great results have come from them in making a bigger, better and richer community. Make your slogan "Rural motor express, and better highways will lower the cost of living."

MOTOR BOAT REGISTRATION

100,000 Already Signed Up Under New Federal Act.

The new federal numbering act, which is in force this season for the first time, requires that all unoccupied motor boats used for pleasure purposes be registered and carry numbers on their bows in somewhat the same manner as license plates are used on motor cars. Compilation of the war is now over, but still we must feed the world, and if we are

out the fact that there are about 400,000 motor boats in use in the United States of all classes.

The registration is for the purpose of establishing the identity of every owner, the home port of the boat, and making any boat easily recognizable. There are about 175,000 such boats. All yachts of more than 16 gross tons are required to be documented, and must carry ship's papers by laws of navigation which have been in force for years. There are about 10,000 such yachts in commission.

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1918. The total registered was 75,268, as against 55,402 in 1917. It is estimated that 27,000 more trucks will be registered in 1919, bringing the total for the present year over the 100,000 mark. New York city claims about 22,000 trucks.

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