A REVOLUTION IN POWER

MAKE YOUR FORD A THREE THOUSAND DOLLAR CAR FROM THE STANDPOINT OF MOTOR SERVICE

TO OWNERS OF FORD CARS

The Ford car is recognized as the greatest dollar for dollar value which can be obtained in an automobile and when the 16 Valve Equipment is added to the motor the Ford car from the standpoint of road efficiency moves to the front of all other cars. In smoothness of operation, in hill climbing ability, in speed and all the other elements which constitute superiority in road efficiency, the Ford becomes unrivaled.

The 16 Overhead Valve Equipment for Fords was invented and patented by Robert M. Root, Mechanical Engineer, of Anderson, Indiana. The wonderful increase in power of the motor with this attachment is almost unbelievable and whether a Ford car owner desires increased power for pleasure driving or to increase the pulling power of his truck or the speed of his car, the 16 Valve Equipment will be a revolution and lift the Ford owner to the very highest plane of delight. A quick entrance of a large volume of gas through the two intake valves, the nearly perfect combustion of gases and the elimination promptly of burnt gas after explosion through the two exhaust valves, is the secret of 16 Valve motor efficiency. At slow motor speeds the explosions are strong and throttling down to a few miles per hour is easy—the motor pulling as regularly as one with more cylinders. The smooth, vroom and energy, and the quick "getaway" is a source of astonishment to a car owner, and speed is whatever the owner has nerve enough to stand. Getting full exploisive energy from the gas means strong power impulses at any number of engine revolutions and great economy in the consumption of gasoline. From one-fourth to one-third additional mileage may be looked for with confidence by the owner of a car with the Ford 16 Overhead Valve Equipment.

The supremacy enjoyed by the allies in the air during the closing days of the war was due to engines of multi-valve design and construction. Cars on the road are not equipped with 16 Valve motors have not stood a chance against cars equipped with modern 16 Valve engine. The case with which the little Peugeot 16 Valve engine on the Indianapolis Speedway and with the smallest piston displacement of any motor in the race, outclassed every other car on the track making the record up to that time was the great proof that a new era in engine construction had begun.

The supremacy of the Peugeot 16 Valve design in power, speed and economy over all other motors is now an accepted fact, and proven conclusively. On account of the wonderful record made by 16 Valve motors in speed contests, many car owners have the idea that these motors are designed especially for speed. This is true only in the sense that they have been used on speed cars because they produced more power in a small motor than can be had from any other type and, therefore, the successful racing cars carry 16 Overhead Valve Equipment, but speed is POWER and hill climbing is POWER, and it is this power which makes the 16 Valve motor of such great value to the ordinary touring car or truck owner. POWER is the basis of road efficiency, and while the strength of the power impulses is not so noticeable at speeds of from ten to fifteen miles per hour, it becomes pronounced at speeds above fifteen miles, and the faster the engine revolves the greater the power proportionately with the 16 Valve Equipment just as it is with the regular motor. For touring cars, the added hill climbing ability and general road efficiency is a source of joy to the owner and the Ford closed cars with our 16 Valve Equipment have no rivals in general road work. For truck purposes the 16 Valve Equipment is ideal. Most of the Converse Ford trucks carry a gear ratio of about 3 to 1, and at this gear ratio the pulling power of the engine is phenomenal and the load which can be carried is a source of astonishment to the truck owner. It is unnecessary to say that this greatly increased load carrying capacity will pay the cost of the Cylinder Head Equipment in a very short time and it is obvious that the owners of this equipment have attained speeds of 8 to 80 and even more miles per hour, and whatever the demand for power may be on the part of the Ford owner, his wants are supplied by the use of the 16 Valve Equipment.

In addition to the gasoline saving, valve grinding is seldom necessary on account of burst gases being expelled from the combustion chamber promptly and the combustion chamber having a ground, smooth finish insures that the accumulation of carbon will be a very slow process. In a season's driving of 5,000 miles, a Ford owner should have the entire cost of the equipment returned in the gasoline and savings, while the pleasure derived from the additional power must be estimated as worth many times the cost of the equipment.

Type B 16 Overhead Valve Equipment is offered complete for $125. There is nothing else to buy. It is shipped to the buyer fully assembled and ready to install. Full instructions for installation is simple and easy and can be done by any mechanic in a few hours.

To sum up the accomplishments of the Roof 16 Overhead Valve Equipment for Fords, the buyer can be certain that it will nearly double the horse power of his motor and greatly increase the gasoline efficiency and the mileage per gallon and deliver road service for which owners of other cars are paying thousands of dollars to obtain.

The Laurel Motors Corporation guarantees that any Ford motor with Roof 16 Overhead Valve Equipment will develop much more power and travel more miles per gallon of gasoline than the same motor without the 16 Valve Equipment and as a consequence of revolutions. The equipment is guaranteed mechanically and the Laurel Motors Corporation will replace within any reasonable time any defective part without charge. A Ford owner cannot possibly appreciate what the small sum of $125 will give to him in service until he has had a ride behind a Ford motor which carries the Roof 16 Overhead Valve Equipment, and regardless of whether the Ford motor is used for pleasure, truck or speed purposes, the 16 Overhead Valve Equipment will meet the demand of the owner. We do not believe that a Ford owner having the equipment in service one day would change back for many times its price.

See our agent in your territory, and if there is no agent there, we will ship you direct. Price $125 F. O. B. Anderson.

THE LAUREL MOTORS CORPORATION

NEW TYPE OF 16 VALVE CYLINDER HEAD FOR FORDS

The new Type B 16 Valve Cylinder Head for Fords, designed by Robert M. Root, mechanical engineer for the Laurel Motors Corporation and especially adapted for touring cars, is now offered to Ford owners as the last word in power, smoothness in operation, hill climbing ability, economy and general all around efficiency. Type A, which is the original 16 Valve Cylinder Head designed for Ford motors by Mr. Root, first came into prominent notice through the wonderful power and speed given to Ford racing cars and wonderful track records were made by Ford cars with the Type A equipment. The great demand from Ford touring car owners for a 16 Valve Head carrying features not embodied in Type A, caused Mr. Root to design the new model, Type B, illustrations of which are shown herewith. Radical changes have been made in Type B as compared with Type A and many of them will appeal quickly to the Ford touring car owner. Recent improvements in Type B design and construction are of such a nature that it now possesses more power and therefore more speed than Type A, and it has wonderful flexibility, and the manufacture of Type A has therefore been discontinued.
EXHAUST SIDE OF TYPE B CYLINDER HEAD SHOWING EXHAUST MANIFOLD AND SPARK PLUG ARRANGEMENT. SHORT CIRCUITING IS ALMOST IMPOSSIBLE

INTAKE SIDE OF TYPE B CYLINDER HEAD FOR TOURING CARS, SHOWING INTAKE MANIFOLD AND EXHAUST MANIFOLD CONNECTION. THREADED END OF EXHAUST MANIFOLD CONNECTS WITH STANDARD FORD EXHAUST. NOTE THE "HOT SPOT" MANIFOLD EFFECT THROUGH THE CONTACT OF INTAKE AND EXHAUST MANIFOLDS AT THE DIVISION POINT IN THE INTAKE. NOTE NEW ROCKER ARM SYSTEM—THE FINEST EVER PUT ON A MOTOR AND CARRYING ALEMITE OILERS WHICH INSURES PERFECT LUBRICATION.

In constructing Type B, care was taken to provide a Cylinder Head that was not only easy to install but simple in adjustment and with easy access to all moving parts so that the Ford owner could make adjustments whenever necessary without calling on expert assistance. The design of the Type B Cylinder Head has received the warmest commendation from mechanical engineers and some of the features tending to motor efficiency are of great interest to Ford owners. The arrangement for passage of gas in cylinder block is nearly perfect and condensation almost impossible. Gas is distributed to cylinders by Y shaped manifold with sub-divided channels in Cylinder Head instead of through the regular intake and exhaust openings in the cylinder block as is the case in Type A. Regardless of the firing order of the cylinders, the mixture in Type B is distributed equally to each cylinder, and most exhaustive tests show it is almost impossible to load the motor at any speed. In Type A the spark plugs are located directly on top of combustion chamber, while in Type B the spark plugs are located on exhaust side but with explosion direct into combustion chamber. Provisions are made for direct priming into cylinders and great precautions have been taken against any chance for over heating. Not only are the water jackets extra large size, but all spark plugs are surrounded by water jackets. Each exhaust is carried off separately and ample water space provided between, which eliminates any possibilities of valves warping. Air leaks of any character into the mixing chamber through push rod guides are entirely eliminated as the push rods operate through bosses not connected with mixing chamber as was the case with Type A.

Where speed is desired loose push rods are of little consequence, in fact the additional air through loose push rods is of advantage in speed work. As there is little or no chance for air leaks in Type B, throttling down the motor to very low motor speeds is assured. There are no abrupt curves to cause back pressure either in intake or exhaust. Great attention has been given to secure evenness in the thickness of Cylinder head walls which will prevent irregular contraction and expansion and thereby increase the thermal efficiency of the Head. Water outlet on cylinder head and connection with exhaust pipe are regular.
Ford standard. Cylinder Head water jacket is so designed as to eliminate all chance for steam or air pockets, the outlet being at the highest point. The exhaust manifold is designed not only to connect with Ford exhaust pipe on same side as intake, but also to heat the intake manifold at the proper point, and every advantage claimed for "hot spot" manifolds are enjoyed by the Ford motor owner with the Type B Head. Provision is made on 1½ inch intake manifold for either the regular Ford 1 inch carburetor or any standard 1½ inch carburetor, and installation can be made without interference with nearly all electric lighting and starting systems for Fords. A special 1 inch manifold is furnished for use with Ford carburetor if desired, but for speed or truck use or for touring car service in mountain territory where the roads are rough and rugged, a 1½ inch carburetor is preferable on account of the greater power received. Nearly all original tests with Type B were made with a Ford Sedan and the pulling power and hill climbing ability was shown to be superior to Type A, and the Sedan could be throttled down to a few miles per hour on high gear, while a speed of 55 miles per hour was quickly reached and easily maintained, and the gasoline economy was most remarkable. Type B is offered to Ford touring car owners as according to them in motor efficiency everything they could possibly look for in the very highest priced cars.

SECTIONAL DRAWING OF TYPE B 16 VALVE CYLINDER HEAD ESPECIALLY FOR FORD TOURING CARS AND SEDANS. MECHANICAL DETAILS ARE PLAINLY SHOWN FOR THE BENEFIT OF PROSPECTIVE CYLINDER HEAD BUYERS.

DEALERS—The Roof 16 Overhead Valve Equipment means substantial profit every month in the year. Whether for touring car, truck, or speedster, the 16 Valve Head is an absolute necessity to every Ford owner. Our agency is of the greatest value. If there is no agency in your territory, get our liberal agency terms.

Price $125 for complete equipment, including plugs and wires.

THE LAUREL MOTORS CORPORATION, Anderson, Indiana.

STANDARD TYPE BB, THE MOST POWERFUL CYLINDER HEAD IN THE WORLD. BOTTOM OF CYLINDER HEAd—NOTE SMOOTH-FINISHED COMBUSTION CHAMBERS, PREVENTING CARBON ACCUMULATION
STANDARD TYPE BB, THE MOST POWERFUL CYLINDER HEAD IN THE WORLD

In August, 1921, Mr. Roof introduced the Type BB Cylinder Head for speed purposes only and from the moment of its appearance on tracks it created a sensation and new track records were made wherever racing cars equipped with BB Heads were entered. The extra large port and valve areas which the BB Head possessed and the special rocker arm system for speed settled the question of superiority in competition with all other motors on half mile and mile tracks, and the records which the BB Head made have created a demand for this higher powered type on the part of many touring car, sedan, coupe and truck owners and we are pleased to announce that we will now offer the Type BB Head for standard road service for the Ford owner who wants the highest powered Head for hill climbing and fast road work.

The Ford tourist carrying heavy camp equipment, trunks and bags containing personal effects, over all kinds of roads and with steep grades to climb will find the new standard Type BB Head a wonder for his service and regardless of road conditions and the load carried most any speed desired may be maintained with ease and with the greatest economy in fuel consumption. The standard Type BB will carry sixteen valves, slightly less than 1 1/2 inch in diameter, and will carry the same compression as our standard Type B. For general power service on the road it is the last word for a Ford motor. PRICE only $150.00 complete ready to install.

Join the 100 Mile Racing Class

Super-Racing Type C, the Fastest Cylinder Head in the World

On the next page is illustrated descriptive print showing in detail the new Type C 16-valve cylinder head for Ford motors and special racing Ford motor which we build complete, ready for service. The Laurel Motors Corporation until recently have never developed their 16-valve cylinder head patents to their fullest extent, but the demand for the very highest speed or dirt tracks on the part of the public and racing car drivers has caused us to bring out our new Type C. It is a wonderful tribute to the genius of our Chief Engineer, Robert M. Roof, who in ten years has become known all over the world through the power specialties bearing his name. Mr. Roof's accomplishments in motor improvement have been many, beginning with his little 4-cylinder aeroplane motor which was the first to attain 1000 ft. in this country, but the new Type C we consider so far in advance of all his previous achievements, that in a very short time it will become known all over the world.

The Type C is a radical departure in many respects from previous Roof designs and it is intended for racing only. The head is somewhat larger and higher than previous designs and has four 1 1/4" intake ports and four 2 1/4" exhaust ports. The Venturi design of the intake ports in connection with the bridge in port increases the velocity and turbulence of the incoming gases, and there can be no banking. The intake port is of ample size to furnish sufficient gas for the large size valves. The bridge in the exhaust port forces the flame to the exit. Most liberal allowance in water jacket space is provided. All valves and spark plugs are water jacketed and there is water above and below the valve ports.

On account of the interior design of the head it will be impossible for water pockets to exist. Four 1 1/4" carburetors are used, controlled by a single lever. The rocker arm system is of a light aeroplane type, and all oscillating parts on the rocker arm system are machined to an extreme nicety. The rocker arm shafts are hollow and filled with oil through Alemite oilers, giving positive and unfailing rocker arm shaft lubrication. The rocker arms and brackets are drop forged steel, and the rocker arms can be removed and the entire rocker arm system disassembled in five minutes by withdrawing two 1/4" cap screws. The push rods have ball and socket joint, with adjustment on top. Sixteen 1 1/2" Tungsten valves are used with hardened valve spring caps turned from bar stock, and caps are locked with 3/32"x1/4" keys. Universal valve extensions operate between the rocker arms and valve stems, preventing side wear on stems, and although the valves are offset it is not necessary to remove the valve stem bushings in order to take the valves out. 3/8" A. L. A. M. spark plugs are standard.

A study of the detailed drawing on the next page will show what a wonderful cylinder head and racing motor we are now offering to the racing car drivers. The many notable features of design and construction will appeal to every motor engineer. Its performance will enable its owner or driver to put it in competition with the very fastest motor cars which are produced, and its speed on the tracks will be sensational. In test work on straights at a speed of more than 100 miles per hour is easily attained in a racing car which is otherwise properly equipped, and actual tests in our own racing car materially exceed the above speed.

In view of the wonderful power and speed which the Type C will give to a Ford motor, it is essential that the owner should build his car up with chassis parts corresponding, so that safety and continuous distance performance is assured at the very highest speeds. The cost of a Ford racing car with our racing power plant and able to compete with the very fastest cars built, is now within the reach of anyone interested in the greatest sport on earth.

A study of the detailed drawing on the next page will show any racing car driver what little chance he will have in a contest on dirt tracks, to share in the prize money unless he has on his Ford motor a Type C equipment.

JOIN THE 100 MILE RACING CLASS
JOIN THE 100-MILE FORD CLASS!!

TYPE C 16-VALVE RACING HEAD FOR FORD MOTOR AND SPECIAL RACING MOTOR COMPLETE. FASTEST IN THE WORLD.

Price of Type C Equipment Complete with Four Carburetors and Special High Speed Camshaft, $225.00.
Price of the Racing Motor According to Specifications. Write Us.

ROCKING ARMS CAN BE REMOVED IN FIVE MINUTES BY REMOVING THESE TWO 3/8 CAP SCREWS.
DROP FORGED STEEL ROCKER ARMS AND BRACKETS.

HOLLOW ROCKERS ARM SHAFTS, ALEMBITE LUBRICATION.
BALL AND SOCKET JOINT WITH ADJUSTMENT ON TOP.

HARDENED VALVE SPRING CAPS, TURNED FROM BAR STOCK. CAPS LOCKED WITH 1/8 X 5/8 KEYS.
4 1/2" ZENITH CARBURETORS CONTROLLED BY A SINGLE LEVER.

STURDY SINGLE SPIRAL GEAR MAGNETO DRIVE.
UNIVERSAL COUPLING BETWEEN DRIVE AND MAGNETO SHAFT PERMITS QUICK INSTALLATION AND REMOVAL OF MAGNETO.

PUMP PRIMER CAP.

ALUMINUM OIL SUMP-THREE GALLON CAPACITY.

REGISTERED FLANGE FIT BETWEEN OIL PUMP AND MAGNETO.
COVER INSURES PERFECT ALIGNMENT OF PUMP SHAFT WITH CAM SHAFT.

PRIME CHECK IN SUCTION LINE.
8" STRAINER INSIDE OF OUTFLOW.

OIL BALANCE PIPE BETWEEN SUMP AND FLY WHEEL HOUSING.

BRASS BEARING SUPPORT TO COMBINE OIL.

LAUREL MOTORS CORPORATION
ANDERSON, IND., U.S.A.
GUARANTY TRUCK UNIT ATTACHED TO FORD CHASSIS, CARRYING TWO TONS OF COAL WITH EASE UP PROSPECT HILL, SOMERVILLE, MASS., THE STEEPEST GRADE NEAR BOSTON. THE COMBINED WEIGHT OF CHASSIS, TRUCK UNIT, LOAD AND PASSENGERS WAS 7510 POUNDS. THIS WONDERFUL ECONOMICAL TRUCK SERVICE IS MADE POSSIBLE BY THE USE OF THE NO. 16 OVERHEAD VALVE EQUIPMENT.

ASSEMBLY DEPARTMENT

SIXTEEN OVERHEAD VALVE CYLINDER HEAD ASSEMBLY SECTION OF LAUREL MOTORS CORPORATION.