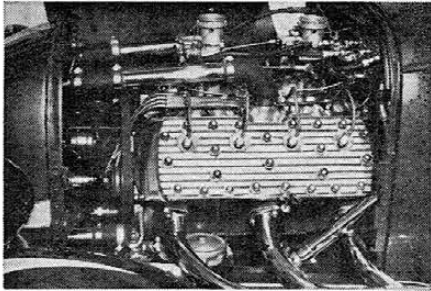




**IF YOU "EAT, SLEEP  
AND LIVE" CARS...**

## TURN YOUR HOBBY INTO A CAREER!



### Get America's Big-time, Big-future **AUTO MECHANICS & DIESEL COURSE**

at home in your spare time!

Los Angeles' National Schools, America's automotive Technical Trade School since 1905, now brings its famous resident Shops and Faculty direct to you at home — to prepare you to earn more money, with job security, in today's fast-moving, opportunity-filled Auto Mechanics Industry!

Get your home training from the "Car Capital of The World"—America's most auto-minded city, center of Hot Rod and Sports Car activity! Mail coupon right now!



### HERE'S THE GOOD WORD ON OUR "SHOP-METHOD" HOME TRAINING!

**YOU MASTER ALL PHASES, INCLUDING DIESEL!** Every step fully explained. You pace yourself. All lessons fully illustrated. Latest equipment covered. Send for free Sample Lesson!



**THIS SET OF LIFETIME TOOLS—YOURS FREE** plus all-metal tool box, mechanical drawing set and other equipment. All part of your course, yours to keep.

**EARN WHILE YOU LEARN!** You can start Spare Time Earnings soon after enrollment. Many students pay for their training and more this way. **OUR GRADUATE DEPARTMENT** always at your service, both as student and graduate, helps you with personal and technical problems.

**ATTENTION MEN OF DRAFT AGE.** Many students have achieved higher rating, prestige, and higher pay as a result of this training. Mail coupon at once.

APPROVED FOR G. I. TRAINING

Both Home Study & Resident Courses Offered



Send for **FREE FACT-BOOK AND SAMPLE LESSON!**

NOW! 2 offices to serve you faster!  
Mail coupon today to one nearest you!

## NATIONAL SCHOOLS

Technical Trade Training Since 1905

LOS ANGELES 37, California

CHICAGO: 323 West Polk Street

IN CANADA: 811 West Hastings Street, Vancouver, B. C.

### MAIL NOW TO OFFICE NEAREST YOU!

(mail in envelope or paste on postal card)

NATIONAL SCHOOLS, Dept. DY-64

4000 S. FIGUEROA STREET OR 323 WEST POLK STREET  
LOS ANGELES 37, CALIF. CHICAGO 7, ILLINOIS

Send **FREE** Auto-Mechanics Book and Sample Lesson. No obligation, no salesman will call.

NAME \_\_\_\_\_ BIRTHDAY \_\_\_\_\_ 19 \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

Check if interested in Resident School Training at Los Angeles

VETERANS: Give Date of Discharge \_\_\_\_\_

# TECHNICAL TIPS

BY BARNEY NAVARRO

(Questions from readers on their problems are welcome and every effort is made to answer as many as possible in *Technical Tips*. The volume of correspondence received, however, makes it impossible to answer such questions directly. Inquiries which are not brief and specific are edited.)

## FORD AND MERCURY

I want to install a '51 Olds engine and Hydra-Matic transmission in a '47 Ford coupe. For use on the highway and for drags, what rear end gear ratio would be suitable? Would any frame alterations be necessary?

Myron Hermes Hutchinson, Kansas

• The rear end gear ratio should be changed to 3.54 to 1. If you intend using the Hydra-Matic, extensive frame changes will be necessary. The X-members in the center of the frame will have to be moved because the stock Ford transmission is shorter than the Hydra-Matic.

I am building a "stock" '46 Ford engine. The Hardtop Association rules permit 125 thousands of an inch overbore, heads be milled 60 thousands, headers and straight pipes, and no generator or fan. How much overbore is possible without having heating trouble? Can you give me an idea of the peak hp I will get, and at what rpm? Is there a formula for finding this? Is there anything else I can do to aid performance and still leave the engine stock?

Scott Anderson Hood River, Ore.

• There is no point beyond which heating is experienced. All Ford and Mercury flat head engines have a tendency to overheat in their stock state. Boring them out increases the tendency so the more they are bored the more they are inclined to overheat. There is no formula for computing the hp increase resulting from the changes outlined. We can tell you, that due to the increase in displacement without a cam change, the point at which peak hp is developed will be lowered by 300 rpm. Additional aids to performance will be dependent on what your association will tolerate without calling your engine non-stock.

We are reworking a 1940 model Ford V8 engine, have hit a dead end looking for an ignition system. We have a Lincoln Zephyr V-12 distributor and a coil from a 1940 Lincoln. Are there conversion kits for this, or can we change these ourselves?

Gary Regan Whitefish, Montana

• Tom Spalding, 303 Monterey Road,

South Pasadena, California, can convert your ignition for you.

I have a 1951 Ford pickup V8. If I install thinner head gaskets how much increase in hp will there be, and will I get better gas mileage?

Paul Linn Pittsburgh, Pa.

• If you can get away with them you'll gain about six hp. In many cases thin head gaskets cause the pistons to hit the heads. Ford and Mercury flat head engines in their stock state maintain clearance between the piston domes and cylinder heads through the thickness of the gasket. In many cases the clearance is less than the gasket thickness of .050 due to plus tolerances on rod and piston lengths and minus tolerances on the top surfaces of the cylinder banks. Connecting rods grow  $\frac{1}{32}$  of an inch at 6000 rpm so you can easily see the result.

I would like to do a mild hop-up on my 1953 Ford Six with overdrive, to get good gas mileage, and still get better top speed and pick-up than I do now. What would you suggest?

A. Peterson Sawyer, Mich.

• Increase the compression ratio by milling the head .060. A compression ratio increase is the only change that will increase power and gas mileage together.

Is it possible to mill more than .060 off the heads of a 1952 Ford V8 without redoming? How far can I go? What is the advantage or disadvantage of lightening the flywheel by removing stock on a lathe?

N. Leyland Ontario, Canada

• If you mill .060 off the heads of a 1952 Ford V8, the engine won't even turn over. All of the pistons will hit the heads. DON'T mill more than .040—and even then you are liable to have pistons hitting the heads. Lightening the flywheel will improve acceleration in low and second gear. It will do more for low gear acceleration than for second. The only disadvantage resulting from the weight reduction will be that slightly more throttle will be necessary when engaging the clutch to avoid killing the engine when starting up. A heavy flywheel rotating at idling speed has enough momentum to get a car under way without applying more throttle when the clutch is engaged.

How much can you take off the head of a 1929 Model A Ford without bad effects?

Tom Shepherd Victor, Iowa

• You can mill .150 off the Model A

(Continued on page 63)

## TECHNICAL TIPS

(Continued from page 8)

*Ford head without bad effects. Actually such a procedure is a waste of time. Procure a Model B head and mill it .100. After milling either the A or B head, the recesses for the pistons should be re-flycut.*

I have a 1940 Merc with a '47 block, semi-race cam, .030 off the heads. The block has been bored .060. I have installed an Echlin coil and Mallory condenser, but have been having spark plug trouble—they foul, need cleaning about every 500 miles. Can you tell what the trouble is?

John Petrusha Libby, Montana

• *Either you are attempting to use plugs that are too cold or the vacuum control on your distributor is inoperative. With such mild modifications there is no reason to use plugs colder than the stock H-9 Champions that are normally used.*

I have in my 1951 Ford engine a full race cam, Mallory ignition, 8 to 1 heads, dual carburetors. What size main jets would you recommend I use?

James Warden Fort Knox, Ky.

• *Stock size for the particular carburetors that you employ. The use of two carburetors does not appreciably affect the mixture characteristics of carburetors as long as they are used on engines with the same number of cylinders. However, a carburetor from an 8 cylinder engine placed on a "4" pulses more than that of an "8". A pulsing flow of air through a carburetor venturi causes a carburetor to deliver more fuel through its jets.*

I own a 1936 Ford coupe. With the fewest alterations which of the following engines, which I have available, would fit best in my car—a 1946 or 1950 Ford, or a '49 Merc engine?

Elbert McNutt Siden, Miss.

• *A 1946 Ford engine.*

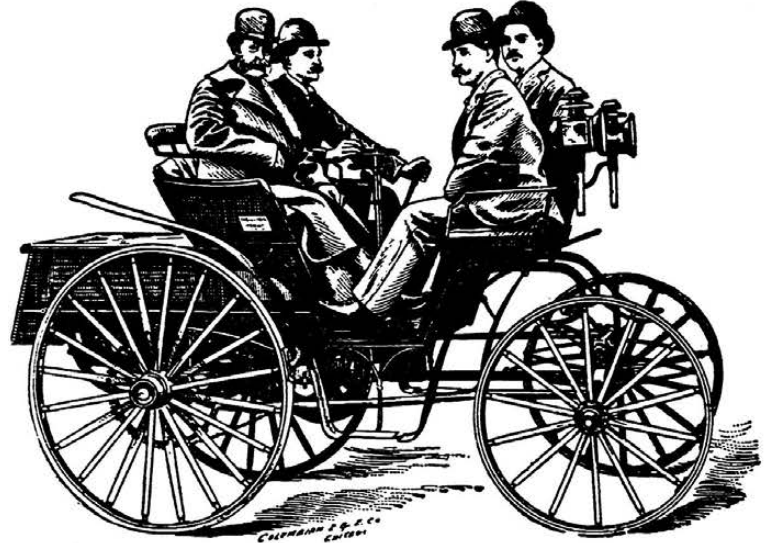
I have a 1954 Ford Ranchwagon and would like to do a mild soup job. How much should I mill the heads and what else is involved?

John Jost Ithaca, New York

• *Mill the heads .060. After this is done the ports will have to be matched to the manifold because the distance from bank to bank is reduced and the manifold will fit higher between the heads. The best way to correct this fault is to mill the manifold flanges of the heads 1.4 times the amount that the head faces were milled. In the case of an .060 mill job the flanges of the heads should each be milled .084.*

The article in the February issue of Motor Life on spark advance confused me slightly; I have a '51 Ford which I plan to put two carburetors on—but can you tell me what type of carburetors

# WANTED!



**T**HESE BRAVE AND GOOD gentlemen of the road as READERS of MOTOR LIFE. Forward thinking peoples know the motor-car has a BRIGHT future. However, should these travellers experience unfortunate mechanical difficulties in their handsome barouche, a TIMELY reference to MOTOR LIFE will offer RELIEF of distress and BALM for the crude affront: "Get a Horse!"

## OUTSTANDING OFFER!

An outstanding special offer is being made to readers of MOTOR LIFE magazine. By filling out the questionnaire on page 52 of this issue and returning it to us WITH the subscription coupon below, a year's subscription to MOTOR LIFE will cost only two dollars instead of three. You save one dollar!

## DETACH AND MAIL TODAY!



MOTOR LIFE  
4949 Hollywood Blvd.  
Hollywood 27, Calif.

Enclosed \$5.00 for 2 years   
\$3.00 for 1 year   
\$2.00 for 1 year   
(questionnaire enclosed)

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

Renewal

New Subscription

**JACKET EMBLEMS**  
you'll be proud to wear—multi-colored emblems and decals of nearly every sport are now available. Made of wool felt screened in assorted colors—only 50c—order by number.

**SEND NOW**  
for our new complete catalog—completely illustrated, of emblems, jewelry, novelties and accessories—Several hundred first class items for you to choose from—only 25c.

**LADY LUCK**  
The mascot of the Race Drivers—SHE rode in over 75% of the cars at Indianapolis Speedway.  
4" Felt Emblem.....\$ .25  
7" Felt Emblem..... .50  
10" Felt Emblem..... 1.00  
T-shirts (specify size)..... 1.50  
Also available in the same size decals at the same prices—Specify when ordering.

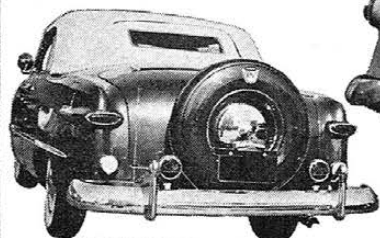
**SPOT ENTERPRISES**  
P. O. Box 66 Culver City 5, California

to use, and distributor? How do you set the timing correct for all speeds?  
Robert Brush  
Oakland, Calif.

• Use stock 1951 Ford carburetors. One carburetor should have its vacuum system reworked. The butterfly should have a round notch filed in the portion that uncovers the vacuum port so that it is uncovered sooner. A small notch should be made in the venturi to connect its vacuum port with the point of smallest diameter so that maximum vacuum can be obtained. With these alterations to one carburetor a stock distributor may be used. Do not connect a vacuum line from the distributor to both carburetors; one to the reworked distributor is sufficient. Better results can be obtained by using a Spalding distributor.

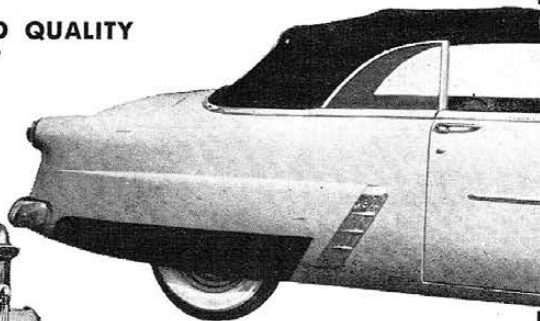
# SAVE \$\$ STAR AUTOMOTIVE

Features  
**GUARANTEED QUALITY**  
**LOWEST PRICES**  
BY MAIL



**CONTINENTAL KITS**

Popular, nationally advertised type for all cars. Available for '49-'54 Ford \$39.95, '49-'54 Chev. \$39.95, 1953 Plymouth \$99.50. Other cars available.



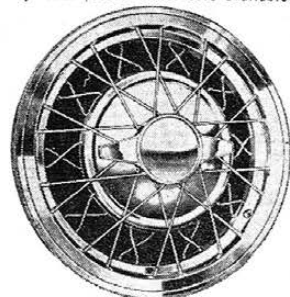
**NEW "CALIFORNIA GLAMOUR STYLE," FENDER SKIRTS**

For '52-'54 Ford & Mercs. Gives sweeping lines to your car. 57" long. Fits all models except 4 door sedans. Ready to install, no welding or cutting required. No holes to drill... rubber mounted. Skirts have prime coat. \$29.95



**CLUB PLAQUES**

For your car or your club room. Excellent car identification at drag races, speed events, etc. Only \$1.75 each, plus pattern charge (average \$12.50). Immediate delivery.



**ORIGINAL WIRE WHEEL HUB CAPS**  
Strong sturdy, \$109.00 value, ONLY \$39.95 per set. Including lock device.

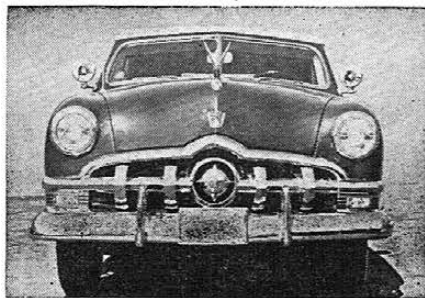
**HOLLYWOOD TYPE MUFFLERS**

Excellent, straight thru steel packed muffler. Increases horsepower, cuts back pressure, \$4.75 for all cars. Specify year, make and model.



**LOWERING BLOCKS**

ADD to that customized look. Increase safety at high speed, sharp curves. Easily installed. For all cars. 2"-\$2.50, 3"-\$3.38, 4"-\$4.18.



**GRILLE TRIM**

Beautifies & modernizes the front end of your car; '49 Chev., '51-'52 Chev., '51 Ford. Only \$7.95. Easily Installed.

**ELECTRIC TRUNK & DOOR KITS**

Electric push button operation. Easily installed on all cars. Finger tip control over opening doors & trunk kits, streamlines appearance of car. Door kits \$15.95 Trunk kits \$7.25

**"BEAUTY FLARED" FENDER SKIRTS**  
only \$7.95 a pair for:

- '36-'54 Fords
- '50-'53 Buick
- '35-'54 Chev.
- '36-'54 Chrysler
- '39-'54 Mercs.
- '35-'41 Buick
- '35-'54 DeSoto
- '35-'54 Pontiac
- '52-'54 Willys
- '35-'54 Plymouth

Which would be more advisable to put in a 1934 Ford coupe—a Ford engine of '49 to '52 vintage, or an Olds 88 engine?  
John McGinty  
Soda Springs, Idaho

• The Ford engine would be easier to install but the Olds 88 engine would produce faster acceleration and top speed.

How best can I improve the efficiency and performance of two Ford Model A cars I own, and where can I get parts and technical data for them?  
Robert Boomer, MD  
Palo Alto, Calif.

• Improving the efficiency and performance of your Model A's is dependent on how much you wish to spend. You can spend from twenty to a thousand dollars with proportionate increases in performance. High compression heads and dual intake manifolds, the most common improvements, can be obtained from any speed shop.

Is it possible to put a Ford V8 engine in a 1941 De Soto?  
W. H. Mackey  
Littleton, Colo.

• Yes, if you wish to spend more money than a 1941 De Soto is worth.

Would you say, in 50,000 miles of driving, that an overdrive in a new Ford V8 would pay for itself?  
Thomas Van Meter  
Bridgeton, N. J.

• It would depend on the type of driving, but in the majority of cases it would pay for itself. Savings in gas, oil, and engine wear will exceed the initial cost.

I have two problems. One is carburetion and gas mileage, the other concerns Mercomatic; my 1953 Mercury doesn't give good performance in either department. Are there more or less definite trouble spots I can easily correct?  
G. Whaley  
Columbus, Ohio

• A Mercomatic will never give as good gas mileage as a standard shift or overdrive equipped machine. There are only two possibilities for singular alterations that will improve performance; one is an increase in displacement and the other

## STAR AUTOMOTIVE CO.

13233 SO. ALAMEDA ST., DEPT HU-6 COMPTON, CALIF

NEW Completely Illustrated Catalog. Facts and Information for customizing your car. 50¢ (refunded upon first purchase).

is the installation of high compression heads. Money spent for anything else, unless these changes are made, will be money wasted. If you wish to get the greatest improvement for the least money, install high compression heads.

How much can I safely take off the heads of my 1951 Merc engine without harming the engine?

Charles Heidler                      Eagleville, Pa.

• Possibly .040 before the pistons will hit the heads. We don't wish to be quoted as saying the .040 can be taken off safely because many Mercs have had pistons hit the heads after such mill jobs.

**PLYMOUTH**

I have a 1953 Plymouth Hy-Drive. Would a special or milled head and duals give it much more "go"?

V. Reimer                              Binghamton, N.Y.

• The head will.

What would you suggest for more hp, with not too much expense, from my 1953 Plymouth with Hy-Drive?

Dick Vivian                              Detroit, Mich.

• A high compression head.

I pull a large boat behind my 1951 Plymouth station wagon. The car now has 40,000 miles on it and I'm planning on an engine overhaul; while I'm at it, do you have any suggestions for a mild hop-up job to give me more power?

Marshall Story                              Westwood, Calif.

• A high compression head and dual carburetion.

**NASH**

I have a '51 Nash Rambler station wagon with overdrive, and would like more speed and power without sacrificing dependability. Would it be practical to install a Ford 6 engine in my car? What modifications of the Nash engine would you suggest?

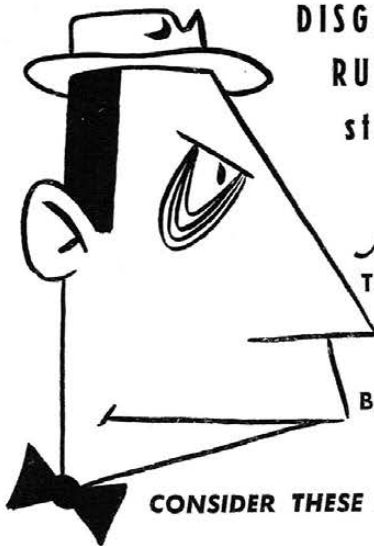
Max Skidmore                              Springfield, Miss.

• Whether it would be practical to install the Ford 6 engine in your Rambler is actually a matter for you to decide. It could be done but do you really think you would like to spend the time and money necessary for the job? The Nash engine can be improved by installing a combination high compression head and dual intake manifold.

I'm a salesman driving stop and go all day. I have a 1953 Nash Statesman, overdrive. I get 19 mpg in town. What can I do to get better city and country mileage with small investment and possibly more power?

Jack De Bar Smith                              Long Beach, Calif.

• If you're getting 19 mpg in town you should be overjoyed. The only thing that will improve your performance is an increase in compression ratio.



**DISGUSTED** with those **LOUD, RUMBLING "Bello" tone steel packed mufflers!**

Replace them with  
**Mitchell "DU-ALL"**  
**STONE FIBER-GLASS PACKED MUFFLERS**

America's **FIRST and FINEST**  
(and most imitated)  
**Fiber-Glass Packed Muffler**

**BEAUTIFUL TONE, HIGH EFFICIENCY WITHOUT EXCESSIVE NOISE!**

**CONSIDER THESE 5 SUPERIOR FEATURES!**

1. They are quieter than any "packed" muffler.
2. They eliminate most of the unpleasant rumble inside the car caused by other packed mufflers.
3. They require no breaking in—Old fashioned steel-packs need 2000 miles or more before being broken-in.
4. They are more efficient, due to the larger straight thru core, made possible by the better sound absorbing qualities of fiber-glass.
5. They are constructed of an extra heavy steel shell, slotted core, end caps and connectors making it possible for Mitchell Mufflers to be guaranteed for one year.



FREE Personalized price list to help you choose "DU-ALLS" the way you like them.

Dealers inquiries invited.

**"We Stand Behind Our Mufflers"**

**Mitchell MUFFLER CO., 141 W. Green St., Dept. H-6, Pasadena 1, Calif.**  
**"DU-ALLS" • HEADERS • PIPES • SPEED AND POWER EQUIPMENT**

**PISTONS**

**EXTRA PERFORMANCE FOR ALL CARS**



FOR SPEED, OR DRAG COMPETITION... OR FOR THRILLING TROUBLE-FREE DRIVING ON THE HIGHWAYS

**SPEED-O-MOTIVE** Pistons are always winners because they deliver extra power... Their feather light-weight means more RPM... Their unequalled strength assures maximum dependability. Speed-O-motive Pistons are available in every size, and every compression ratio, at popular prices for all cars. Big bores and strokes are our specialty. Pins and rings are furnished.

**CUSTOM PISTONS** are the choice of champions for track racing. Three-ring, solid-skirt design. Balanced sets, with fitted pins, in the most popular bores & strokes at \$49. Some sizes slightly higher.

**HI-DOME PISTONS** for power-packed extra compression in all overhead valve engines. Tests show 10 to 20% more horse-power in both stock and modified engines. Balanced sets with fitted pins: Chevrolet \$43, GMC \$52.

**SUPER PISTONS** for general use on highway & stock car racing. Four-rings for oil control. Closely fitted, quiet running. Super Pistons give extra performance at lowest prices. Balanced sets, with fitted pins, for Ford & Mercs starting at \$25.

**HOP UP SPECIAL**... FREE RINGS furnished with every order of Custom Racing Pistons for Ford & Mercury V-8 in the popular 3-5/16 bore x 4-1/8 stroke. This is .125 oversize and 3/8 stroke (3/16 LC). Balanced set of Custom Pistons, with fitted pins, and rings, \$49.

DEALERSHIPS AVAILABLE

Send 10c for complete illustrated "Piston Power Guide" and catalog. Gives facts you should know.

**ORDER TODAY—AT YOUR DEALER OR DIRECT**

**Speed-O-Motive 9714 E. Garvey Bl. El Monte 21, Calif.**

Please send (By return mail).....  
NAME .....  
STREET ADDRESS .....  
CITY ..... STATE .....  
NAME OF NEAREST DEALER .....

**Speed-O-motive** El Monte 21 California