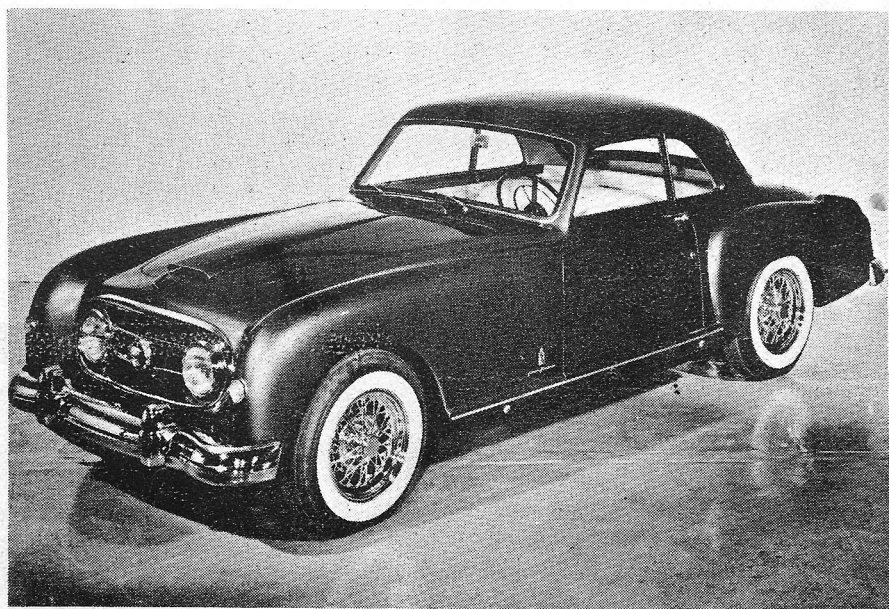


# *Nash Healey*

## *Car club magazine*

Vol. 2 No. 1

Jan. - Feb. 1971



*1953 N. H. Le Mans Coupe*

## PURPOSE & BENEFITS OF THE NASH HEALEY CAR CLUB

The Nash Healey Car Club is now an International Car Club for all Nash Healey owners and enthusiasts. Other Nash and other type Healey owners are also welcome to join. The Nash Healey Car Club has over 100 members in the United States, England, and the Virgin Isles.

It is our desire to promote the preservation, restoration and maintainance of all Nash Healey cars.

To unite all Nash Healey owners and enthusiasts of the marque.

To promote the showing of Nash Healey cars on a Regional and National scale.

To provide a source for all members in finding, buying, selling and trading Nash Healey cars, parts, and literature as well as other automobilia.

To publish a bi-monthly magazine for all members This will include pictures, articles, technical points, restoration tips, and reports on Nash Healey meets, and news of Nash Healey's and other Nash and Healey cars, and a classified section (advertising will be Free for all members in this section).

All members will be entitled to and encouraged to send in news items, articles, and stories on restorations. Letters and pictures of members cars will also be welcomed.

Membership dues for one year are \$6.00 and includes a membership card, one year subscription to the Nash Healey Magazine (published bi-monthly) and a Directory which lists all members and all known Nash Healey cars.

## NASH HEALEY CAR CLUB MAGAZINE

The Nash Healey Car Club Magazine is the official publication of the Nash Healey Car Club and is published bi-monthly. It is sent free to all paid up members. Each member will receive all issues of the Nash Healey Magazine for the year he joins regardless of what month he joins. No part of this magazine shall be reproduced without the permission of the Nash Healey Car Club officials.

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## CONTENTS

NASH HEALEY NEWS AND VIEWS . . . . .	4
1953 LE MANS COUPE, by R. M. Kauffman . . . . .	6
THE SAGA OF THE BLACK MONSTER . . . . .	8
N.H. CAR CLUB FINANCIAL STATEMENT . . . . .	11
TECHNICAL TIPS CONT., by Bruce Hampson. . . . .	11
1953 N.H. LE MANS RACE CAR (REPRINT). . . . .	Center
THE NASH HEALEY SUSPENSION, by Dick Law . . . . .	14
NASH HEALEY CLASSIFIED SECTION. . . . .	22

- EDITORIAL

At this time of the year, with old man winter upon us, it is a good time to check your Healey over. To fix those few little things that need attention, or perhaps finish your restoration, so your car will be ready for our 1971 N. H. car meets.

On the technical side, be sure to read carefully the fine article Dick Law has written on the complete rebuilding of the N. H. front end. I hope to announce the availability of N. H. king pins and bushings in the next issue.

If you have any N. H. parts or literature for sale please send it in for listing in our Classified Column. There is no limit on the amount of words to be listed. Also you can run an ad as often as you want and there is no cost for this service. Many members need certain parts desperately to get their Healey back on the road.

On the point of N. H. windshields, I have not heard from the Corning Glass Co. yet. I hope to get some word soon. If any member has any suggestions on getting some N. H. windshields made please let me know.

I did receive some news from John Conde of AMC on our 1971 National Meet in Kenosha. It will probably be held the beginning of July. Mr. Conde said that American Motors will do everything possible to make the meet a success. They will design and supply the trophies and dash plaques. The meet will be held in the Municipal Stadium and will be open to the public. There will be a banquet held after the meet and AMC is inviting some of the old-time Nash employees to attend. This promises to be a real nice affair, so I hope all N. H. members will try to attend. Complete details should be in the next issue.

We are making final plans for our second N. H. Spring Meet in the East, again near Boyertown, Pa. This will be held about the first Saturday in May. We are working on the possibility of several other Regional meets in the New England area, Midwest area and in the California area. All members that would like to help in organizing these Regional meets should write me as soon as possible.

The 1971 Nash Healey Directory will be sent to all members about May 1st.

Some, if not most of you, have heard of Hemmings Motor News. It has the best Classified Section on Anti-que Classic and Sports cars in the world. I would like to announce, as a bonus for Nash Healey members, if you would like a sample copy of Hemmings Motor News, let me know and we will be glad to send it to you at no cost or obligation. Also, to try and increase our members in the Nash Healey Car Club, if you have a friend who is interested in Nash or Nash Healey or other Healey type cars, send me their name, address and zip code, and we will send them a Free copy of our Nash Healey Magazine. They do not have to own a N. H., only have a real interest in them.

Several of our members have moved and it is important to let us know your new address as quickly as possible so our file can be kept up-to-date and you do not miss any issues of our N. H. Magazine. Also always include your zip code.

Some members may wonder, does it really pay to put an Ad in our Classified Column? Well, I received a very nice letter from Roy H. Park on this point. Mr. Park said in his letter, "A note of thanks: Due to the tremendous response of our members in answering my request for parts for my '52 Nash Healey Roadster, I'm happy to report she'll be back on the road this Spring. Much appreciation", signed Roy H. Park, Terrace Hill, N. Y. Mr. Park is President of the Park Broadcasting Co. I think we share Mr. Park's happiness in being able to assist in getting his Healey in shape again. I hope Mr. Park can show his N. H. at our National meet this summer.

I hope all members enjoy this issue of the Nash Healey Magazine. If you have not sent in your 1971 Membership dues it will be the last issue you will receive. If you have put it off, send \$6.00 at once to renew your membership for '71. Along with your 1971 membership card you will receive a revised copy of the history of the Nash Healey sports car and material that is available from American Motors on N. H. John Conde of AMC sent me a supply to distribute to all members.

Due to the terrific response we will continue to print several pictures of members N. H. cars in each issue in our family album page, so if you have not sent in a photo of your Healey, do it now.

R. M. Kauffman

# THE NASH HEALEY STORY

## Part 4 - 1953 LE MANS COUPE

By R. M. Kauffman

1953 proved to be the best production year for the Nash Healey sports car. It was in January 1953, that Pinnin Farina designed a hardtop model for Nash. It was thought that by adding a hardtop Nash Healey to Nash's prestige line of cars, sales would increase in both the Nash Healey line as well as in the standard Nash car sales.

A very fine descriptive brochure was printed by Nash in '53. This covered both the new hardtop coupe and the popular Farina roadster. A few of these brochures can still be found, but are now collectors items and are selling at a premium price.

Dimensions on the '53 Le Mans coupe were: Wheelbase - 108", overall length - 180.5", overall width - 65.87", overall height - 55", tread front - 53", tread rear - 54.87", tire size - 640-15. All '53's had the larger Nash Ambassador engine - 252.6 (4.1 litre) and had dual Carter side draft carburetors.

A 1953 Le Mans coupe was the center of attraction at the Nash Motors display in the Chicago Automobile Show. Over a half million persons viewed the Nash display.

On the European continent, in March of 1953, a '53 Le Mans coupe was awarded first prize in the Custom Sports Car Body Design, at the Italian International Concours D'elegance, held at Tresa, Italy. The award was accepted by Pinnin Farina, as the body designer of the Nash Healey sports car.

As with the '51 and '52 model Nash Healey, the Le Mans model had an interior finished in genuine leather over foam rubber cushions. The seat was a bench type and thus would comfortably hold three persons. In several road tests of the car, most agreed that in general the ride was most comfortable because of the high bench seat combined with the telescoping steering wheel. The Nash Weather Eye, (a heater, & ventilator defroster unit), was standard equipment and kept the interior at the right temperature.

As to power, *Sports Car Pictorial* stated that this was a genuine 100 mph car, by holding it steady at 4,000 rpm in overdrive. Acceleration was zero to 60 in a mere 12 seconds. The road test included this, "The car cruised effortlessly at 90, mile after mile."

Many people felt, at the time, the price tag on the Nash Healey was too high, so this was a real negative. However, I think a few comments from a road test of the Nash Healey in *Auto Age* magazine of 1953 is appropriate. "As to value? Well, you don't get a Farina design for peanuts, so the six thousand buck price tag, F.O.B. New York, comes quite naturally. The American Nash Ambassador motor teamed with the chassis by Donald Healey of England and the body designed and built by Turin's Farina, make up into a street car that will lead the rest of the traffic (and it will do just that, believe me) and the little woman will soon learn that it parks like a dream and so might be considered a run-about. We all have our likes and dislikes, so a person has to consider such a car from all standpoints in addition to the rather high initial price."

After commenting on the N. H. achievements at Le Mans, Joe Wherry of *Auto Age* continued, "So, in spite of the few individual opinions of negative nature expressed, I honestly believe the N. H. to be a fine car and one that will continue to make more records. Nash Motors should make available the type of information which is going to positively aid the motorminded members of the auto loving public in deciding the merits of the car. On the credit side, Nash Motors have a good car, and they are certainly due the admiration of the public for wholeheartedly taking an interest in the sports car field with a car that is not just a sports type car but with one that is able to turn out the type of performance required to qualify as an honest to goodness sports car. We of *Auto Age* extend our appreciation for the opportunity to drive the new Nash Healey and report the facts as we found them.

One improvement many would have liked to see was a 4-speed gear box, rather than the 3-speed with overdrive, but this never came. However, the '53 N. H. Le Mans Coupe is still a real classic in the entire field of sports cars of the 1950's."

\* \* \* \* \*

BACK COVER: Nash Healey Family Album. Dick & Susan Law, San Francisco, Calif.

# THE SAGA OF THE BLACK MONSTER

No, this is not a horror story of some bloody, horrible monster. Rather it is the true story of a race car. A Nash Healey race car.

Our story begins in 1953. The Nash Healey entry for Le Mans is being completed. The Nash Healey car this year will be competing with the new Austin Healey as well as the Jag's, Aston Martin's, Cunningham's, etc. Even though the N. H. No. 9 ran faster than the famous No. 10 of '52, and had no mechanical problems, an 11th place finish was the best the N. H. could do.

Later the car was brought to the United States. I don't know if Nash Motors had the No. 9 race car on display at various dealers as they did the No. 10, or not. Sometime later, a fellow by the name of Andy Rosenberger from Milwaukee, Wisconsin, bought the car. And from 1954 to 1956 Andy Rosenberger raced the car under No. 98 and used the same original color. Andy raced at Willmont, Elkhart Lake, and the ice races at Silver Lake, Wisconsin. According to member Paul Shaw, who was the general chairman of the Iowa City sports car races of 1954-55, Andy and No. 98 were entered both years. A picture of Andy and No. 98 was in the official race program both years. I do not know just how he finished.

So the racing career of old No. 9 or No. 98 was far from over. Sometime in 1957 a fellow named Palmer bought the car and it was around this time that the car was rolled and the aluminum body badly mangled. Palmer, who was from Philadelphia, Pa., then had a black fiberglass body put on the Healey chassis and raced the car up and down the east coast as the Black Monster. While the car usually ran fairly well, it never had any impressive wins or set any speed records.

About 1960, a kid from Reading, Pa., bought the car and made a hot rod out of it. After about 2 years he skidded and smashed into a tree and ruined the second body.

Next, the remains of the car was taken to a junk yard about 7 miles south of Reading, Pa. and remained there until the next summer. Then a fellow named Carl

Fredrick bought the car, took the car home and stored the Healey in the basement of his home.

Mr. Fredrick had visions of having the Healey completely restored. He wrote to Donald Healey in England to try to get draft plans of the original body but Healey never answered his letter. He felt the Nash Healey venture was by now a dead issue. But Fredrick did not give up easily. A friend of his was going to Sebring, Florida for the races. He also knew that Healey would be there. But when confronted about the Healey restoration he would not even discuss the project.

In the meantime Fredrick had done some work on the engine, and had even gotten a rough estimate on the price of a replica aluminum body from the Durham custom body shop in Rosemont, Pa. About now the restoration project came to a standstill.

About four years later I had my '52 Farina roadster at the Reading Hospital car show and Mr. Fredrick was one of the judges in the sports car class. He told me all about his Healey project and asked me if I would be interested in buying the '52 Nash Healey Le Mans race car (he was under the impression it was the '52 car, not the '53). I told him at the time, I was not interested in the car.

About a year later I said to my wife one night, "I wonder if that fellow still has the Nash Healey race car yet. Let's run up and take a look at it". Well, sure enough, he still had the car and by this time his wife was very disgusted with having the car in the basement for the last five years. After some discussion, I bought the car, still thinking it was the '52 Healey Le Mans car.

With the car I got the original Healey serial and chassis number plate, so I wrote John Conde of AMC to verify if my car was the '52 Healey race car. Mr. Conde wrote back that AMC had no records of the serial number or chassis number but to check the body for No. 10. This of course was impossible, for the original body was long gone. I knew that if I would write Donald Healey I would probably get no further than Fredrick did. Then I remembered Donald Healey's son, Godfrey. Perhaps he would send me the needed information, so I sent a letter off at once to Godfrey Healey in England, listing the serial number and chassis number.

I received a reply not from Godfrey Healey but from his brother Brian, who is General Secretary of the Austin Healey Club in England.

In his letter he stated that the race car I had was not the '52 No. 10 but rather the '53 No. 11 that finished 11th in the '53 Le Mans. This car was also entered in the '53 Millia Miglia, but did not finish. The car was fitted with a Laycock overdrive and Girling brakes (with special air scoop for brakes, see reprint). The car was driven in the Le Mans by L. Johnson and B. Hadley.

Members may be interested to know that according to Brian Healey, the Healey car with chassis No. NH 20231, was built in 1950, when it finished 4th at Le Mans. This same car was subsequently rebuilt with a saloon body (see picture on page 11, N.H. Magazine, Issue No. 5) for the '51 Le Mans, and went on to finish 6th. In 1953 this saloon bodied Healey ran in the Millie Miglia where it crashed into a bridge, due to aquaplaning. The car was driven, at the time, by Donald Healey and his son Godfrey. Shortly thereafter, the same car was rebuilt for the '52 Le Mans, this time as an open car and came in 3rd overall in the Le Mans.

So actually, it was basically the same Nash Healey car that ran in the '50, '51, and '52 Le Mans. As far as I know, this information has never been printed before. This also narrows the number of special built Nash Healey race cars from 7 to 5. The car is still in England and is owned by Richard Ellis of London.

So the Black Monster is not dead, only resting under some plastic until someone (I doubt if it will be me) restores this historic Nash Healey race car.

\* \* \* \* \*

# NOTICE

All members interested in exchanging photos and information with other members, send your name and address to the Nash Healey Car Club. List will be printed in the next issue.

## NASH HEALEY CAR CLUB FINANCIAL STATEMENT

FROM: Dec. 1, 1969 - Dec. 1, 1970

### INCOME

Memberships; 94 paid @ \$4 each-	- - -	\$376.00
Donations, sent to N.H. Club-	- - -	\$ 20.00
Sale of Extra N.H. Magazines-	- - -	\$ 8.00
Sale of N.H. License Plates-	- - -	\$ 10.00
Profit on Dash Plaques-	- - -	\$ 7.00
Total	- -	\$421.00

### EXPENSES

Printing of Six issues N.H. Mag.-	- -	\$335.00
Postage and Envelopes	- - - - -	\$ 59.00
Stapler & Staples	- - - - -	\$ 18.00
Membership cards	- - - - -	\$ 9.00
1970 Directory - Partial expenses	- -	\$ 15.00
Advertising	- - - - -	\$ 15.00
Misc. Printing	- - - - -	\$ 20.00
Trophies & Dash Plaques for N.H.		
Car Meets (not covered by registrations.)	- - - - -	\$105.00
Total	- -	\$576.00

Deficits up to Dec. 1, 1970 - - - - \$155.00

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HAMPSON:cont. from pg. 14, Vol. 1, No. 4

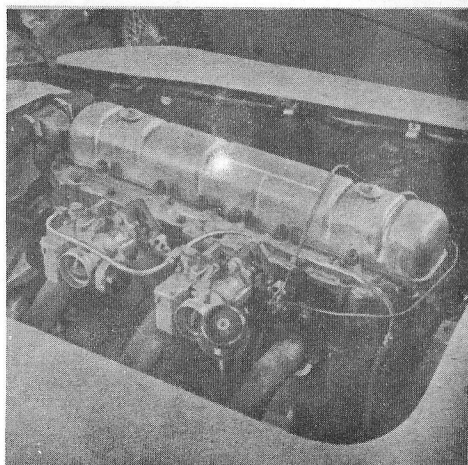
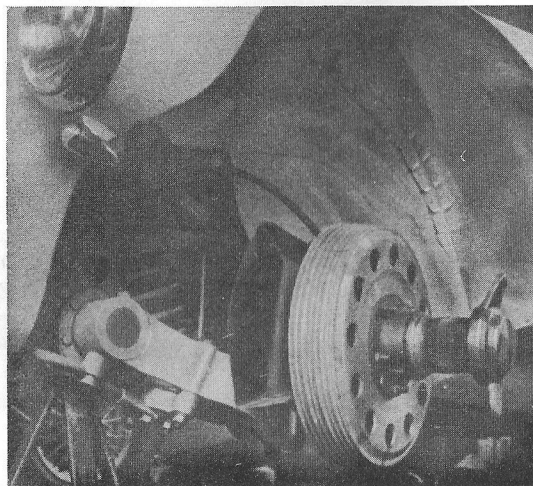
You must be sure the dowel pin on the generator housing is located in it's hole on the engine block. This is very important, as this determines the alignment of the water pump shaft. If the dowel pin is not in it's hole the fabric coupling will tear apart and pull the "O" ring out of the pump body, thereby disposing 17 quarts of coolant on the ground. All this plus proper fan belt tension should equal a cool running Nash Healey.

I believe the members can obtain Whitworth tools from Moss Motors, Ltd., Box MG, Goleta, Cal. 93017.



The fascia panel and instruments are finished in a dull black to prevent reflections. A 45-gallon fuel tank is below the rear panel.

Large air scoops are fitted to the front brake drums.



Twin side-draught Carter carburetors meter fuel to the engine, and the three exhaust pipes, seen below the carburetors, feed into a tail pipe which finishes in front of the left rear wheel. The light alloy radiator is fitted with a pressure cap.

#### SPECIFICATION

**Engine.**—Six cylinders, 88.983 x 111.12 mm (4,138 c.c.) 8 to 1 compression ratio. Overhead valves operated by pushrods and rockers.

**Clutch.**—10in diameter dry single-plate; ball race withdrawal mechanism.

**Gear Box.**—Three-speed with Laycock-de Normanville overdrive. Overall ratios: Overdrive top 2.48; normal top 3.54; overdrive second 3.77; normal second 5.39; first 9.1 to 1. Central gear change.

**Final Drive.**—Torque tube. Rear axle ratio 3.54 to 1.

**Suspension.**—Front, independent with coil springs and trailing links. Rear, coil springs.

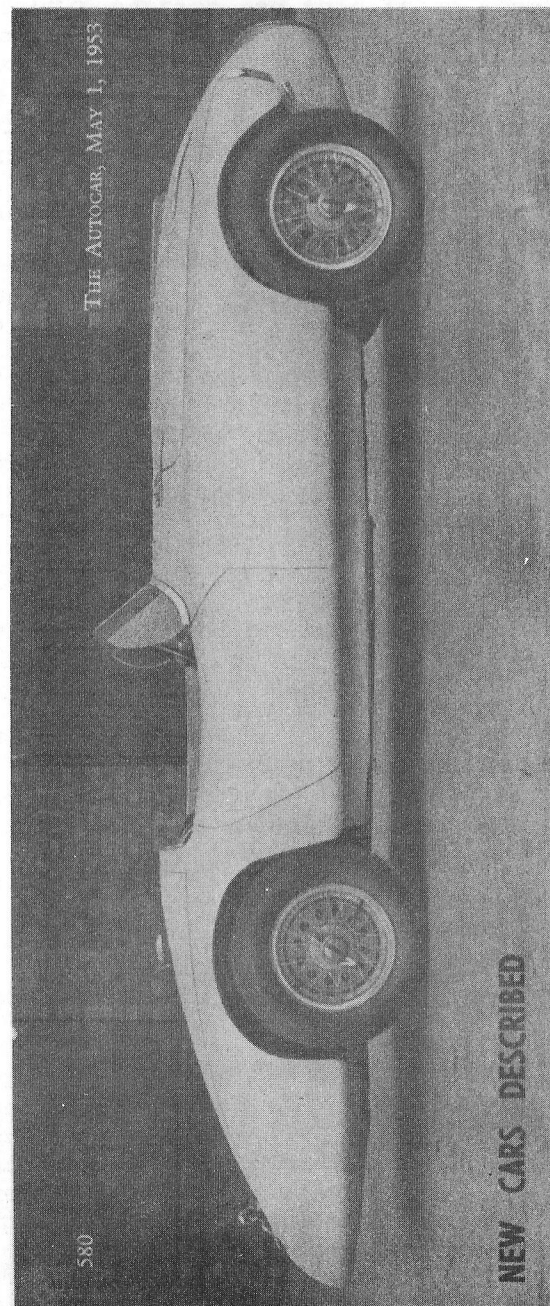
**Brakes.**—Girling hydraulic two-leading-shoe front; drums 11in diameter, 2½in wide, front and rear.

**Wheels and Tyres.**—Dunlop 6.00-16in on centre-lock wire wheels.

**Electrical Equipment.**—12-volt battery. Head lamps, 48-48 watt bulbs.

**Fuel System.**—45-gallon tank.

**Main Dimensions.**—Wheelbase 8ft 6in. Track, front, 4ft 6in; rear, 4ft 5in. Overall length 15ft. Width 5ft 5in.



The perforated brake drums can be seen behind the centre-lock wire wheels. Leather straps and hinges supplement the steel bonnet hinges mounted inside and on the front of the bonnet.

# THE N. H. SUSPENSION

By Dick Law

Everyone that owns a Nash Healey knows that the front suspension is quite different from anything that he has seen before. With it's massive shafts and trailing links it looks like it could support a GENERAL SHERMAN TANK and presents a formative display of ingenuity. But alas! Let me tell you my tale of woe.

While roaring down the freeway at 70 MPH I nearly met my maker when all at once the left front of my car dropped down and a solid sheet of sparks went by my window. What happened? Did the wheel come off? Did the spindle shear off? Good lord what is this? It's Friday night and the freeway is jammed with speeding cars. Must I die? No - the fellow to my right knows I'm in trouble and backs off to let me skid by. I see an off-ramp. But no - I can't take it as the next person that takes it will clobber me if I stop. Ahah! I'll scoot to the left side of the off-ramp divider and stop, call a tow truck and "I'm home free". But wait a minute - I'm still going 40 MPH and I can't turn this blasted thing to the left! Jam on the brakes - they work! My God, I'm going to hit the divider! - Slam - Crash - Smoke - Dust - @ = \* . I've stopped and I'm alive!

What happened? Is the spindle sheared off? I'm numb and hurt. How am I going to get home? The good Lord always watches over me, (because I'm nice), so now after my whole life has passed by me I know I have made it.

Does this sound like a story in a movie or a book? No - it's not. This happened to me in January 1970. Now that I have calmed down, and you may also, let's discuss what happened.

The inner ball bearing of the spindle bracket (Pg. 32 - pc 14 of the manual) had failed. The ball spacers or "marcell" of the bearing had fallen apart and the balls all ended up next to each other and allowed the inner race to pull out of the outer race. So the entire wheel and spindle assembly came out of the trailing link. Luckily, the upper shock absorber arm held the tire and assembly under the car and the brake line was not damaged. I had noticed that the tires were worn on the inside edges and thought that the King Pins were shot or possibly the spindles were bent, as my car has over 200,000

miles on it and who knows what it has been through. After disassembly and inspection I found these parts in perfect condition and this is an important point! I have seen ads in the N. H. Magazine for King Pins but there is relatively little that can go wrong with them. It is the brass bushings that wear, not the steel pins! If the king pins and bushings are shot it will not cause the tires to wear on the inside edges of the tread as this decrease of camber angle is so slight that it could only be measured with front end alignment equipment, and possibly cause harder steering or "somewhat unusual handling characteristics."

When you experience this type of tire wear it signifies that you have bearing problems in the main shafts or inner spindle shafts and you may or may not have bushing problems. If you remove the bearing cap covers, the ball bearings can be inspected for failure and I recommend that this be done every 10,000 miles. It doesn't take a brain surgeon to spot a trouble in this area. Anyone with no mechanical knowledge at all can see metal chips or damaged parts in these areas. It seems, the biggest bug-a-boo in the entire front end is the inner mainshaft bearing (see Pg. 17, Pict. 1A). It uses a split inner race with a flat washer and three bolts to hold it in position. As the weight of the car is on the outer needle bearing, which acts as a fulcrum, it causes the weight of the car to spread the inner races, and the balls of the bearing will drop down onto the shaft. This causes the flat washer to dish and the heads of the three bolts to come together. Naturally the needle bearing is now misaligned and this chews up the mainshaft bearing area. This presents a serious problem as the car can have as much as 10° sag in the front end and now it has an outward thrust on the inner spindle ball bearings. These bearings are not designed for side thrust and it is just a matter of time before the assembly fails and you or your family will share my experience.

Fortunately for me, I am a machinist and can manufacture new shafts and parts as well as know what will work or what is a "jury-rig" design. I will refrain from giving my opinions of the engineering of the N.H. as we must always think of good will to other countries that export their products into the United States. I will not make a wave to sink an important ship that delivers us the goodies that Detroit will never give us again. Now that statement is worth a thought! But anyway let's talk about Nash Healeys.

I feel it is imperative to describe what I have done to make the front end a safe and reliable part of these cars so here we go with what I have done.

After disassembling the entire trailing link assemblies, (you will find many words not commonly used at the dinner table are necessary for this), I inspected each part for wear, etc. Right off the bat it became apparent that the mainshaft design would have to be changed as the balls of the inner bearings were cracked in half from dropping through the split of the inner race. Because the shafts had been pivoting on the needle bearings the shafts themselves were chewed up and some of the tiny rollers were gone. (Picture #1A). This problem was set aside as I moved next to the lower spindle area. Obviously the single row inner bearings would have to be replaced with something else, as a standard ball bearing is not designed to take much side thrust which any car takes when it is in a turn. Next the king pins and bushings were checked for clearance and I found about .005" clearance which is excessive and needed replacement. The king pin shafts measured 1.000". So I will state that for practical purposes all wear was in the bushings. This is caused by a "Rube Goldberg" greasing system. As you may know, the king pins are greased by the fitting at the top of the spindle and the grease is supposed to travel down through the hollow king pin, after greasing the top bushing, and lubricate the lower bushing. This works for a while as long as the bushings are not worn, but after some time the upper bushing wears more than the lower because of the weight of the car and the grease will squirt out of the upper end of the spindle and no grease ever reaches the bottom bushing. It might be a good idea to drill and tap the underside of the bottom bushing on your car for a standard grease fitting. By doing this you will eliminate some future king pin bushing problems.

After much thought, while sitting upon my genius chair, I made the following changes to my Nash Healey front end.

Number one was to redesign the main shafts (pc #8, pg. 32 manual). I machined new shafts to accommodate a standard #7 bearing nut and washer on the inboard end and made the bearing area .375" longer to accept a double row standard #5207 ball bearing. The overall lengths of the shafts were not increased as a longer shaft inboard will not allow the housing cover (pc 17) to clear the frame, (Pict. #2). I machined the bearing areas and

Picture #1

Nash Healey

Tool Kit.



Picture #1A

Note that the balls are cracked in half. The double row replacement bearing is to the right.

Picture #2

New shaft, bearing, brg. washer, nut & bored out housing cap.



the areas that fit into the trailing links .020" over-size and drilled the 15/32 hole. Then I had the shafts hardened (carbonized) to a hardness of 60 Rockwell .030" deep and then the shafts were ground to proper diameters. Then I machined the inboard housing bearing areas to accommodate the slightly larger diameter of the bearings. Also at this point I machined back the shoulder of this bore .375" for the wider bearings. About half of the threads' inside diameter is cut away in this process but it is no problem as there is more than enough thread left to hold the cap, (pc 17), (Pict. #3).

I substituted a #5206 (narrow) double row ball bearing for the single row on the spindle (pc 12). This bearing is 1/8" wider than a single row bearing. The only change I made in this area was to machine a 1/8" shoulder on the bearing retainer bolts, (pc 11). This is necessary as new lock screw holes must be drilled and a 1/8" gap between the bolt head and the spindle bracket is too much. A most important point is not to use the "mickey mouse" flat head screws (pc 7). Use 1/4" socket head set screws and avoid the old holes. Be sure you protect the open bearing and do not get any metal chips into it as this invites problems. No modification is necessary to the bearing cap (pc 10) except to drill a new hole after assembly to accommodate the lock nut and bearing washer, (See Pict. #2).

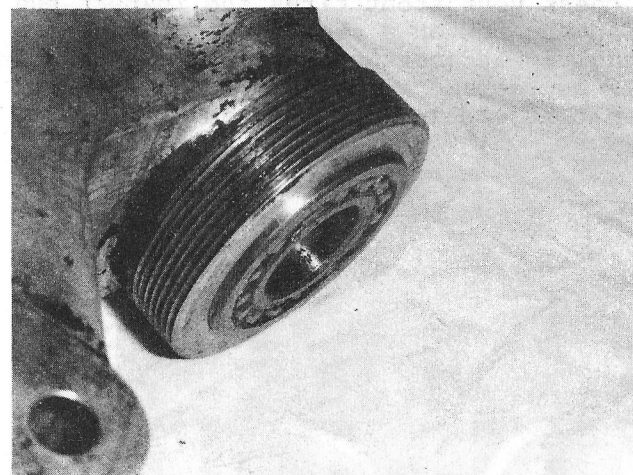
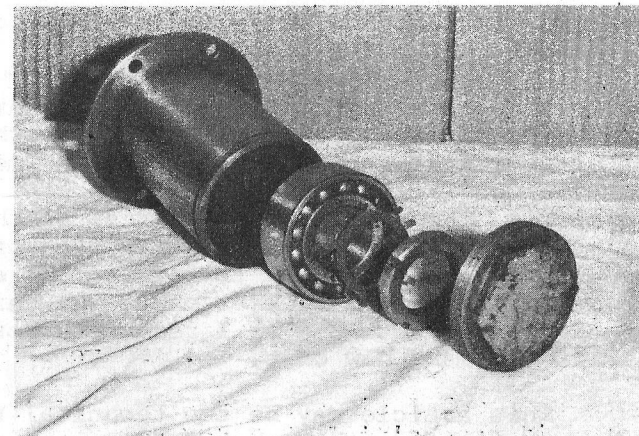
That covers the machine work except for all of the many pieces I left behind on the freeway such as pieces 22 & 23, all trailing link bolts, sway bar end, and assorted other parts.

The installation of the main shaft (pc 8) into the trailing link proved quite a challenge. After convincing my wife, I placed the cleaned trailing links into my kitchen oven and heated them up to 400°. This took about 1/2 hour and I then installed them onto the main shafts. Have a sway bar anchor bolt (pc 23) in your hand when you do this and put it through the hole as the shafts will seize in a few seconds, (Pict. #5).

A most important change that I made was to substitute the felt washers (pcs 21 & 25) with neoprene "O" rings. The felt deteriorates rapidly and allows water and dirt to enter the needle bearings (pcs 15 & 20). I used two "O" rings at each joint. The main shaft rings were 2-1/2 OD x 2-1/8 ID x 3/16 dia. & 3-1/4 OD x 2-7/8 ID x 3/16 dia. The spindle "O" rings were 2-3/4 OD x 2-1/2 ID x 1/8 dia. & 3-1/8 OD x 2-7/8 ID x 1/8 dia. These make a perfect seal on the

Picture #3

Housing bored out and ready for assembly.



Picture #4

The wider bearing sticks out 1/8".

Picture #5

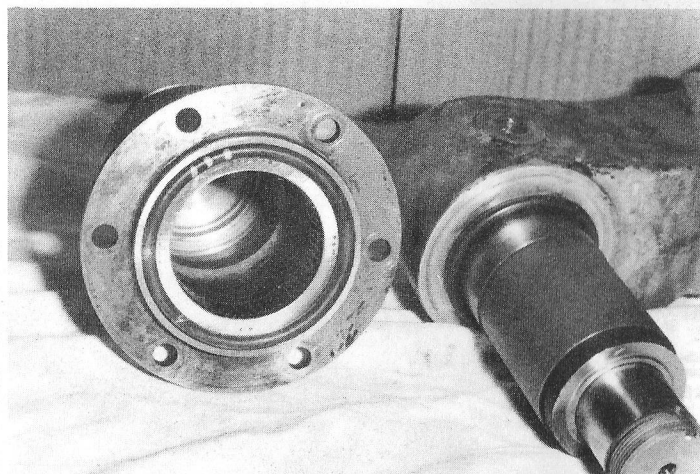
This shows new shaft installed & gives a comparison between old & new shafts.



irregular surfaces and are impervious to grease or oil, (Pict. #6).

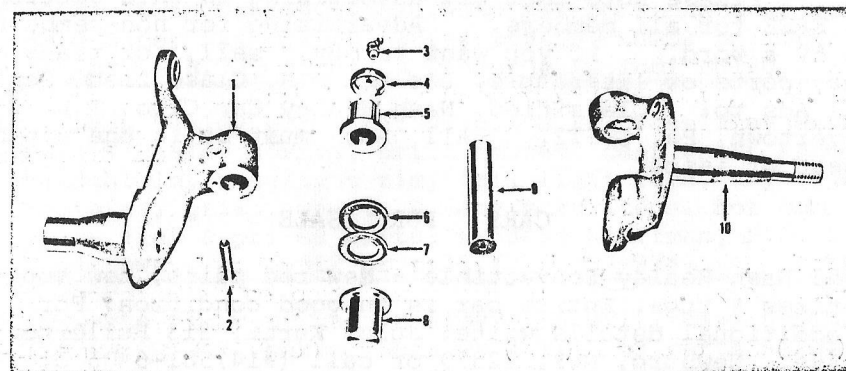
I machined new king pin bushings out of bearing bronze. I allowed .0005" clearance for the king pins but after installation I found I had a "metal-to-metal" situation so I used a brake cylinder hone to obtain the proper fit. Note that the thickness of the flange on the bushings is important, but if you goof, any machine shop can grind down the thickness of the selective washer (pc #7) or make a thicker one. The hardness of my washers was 40 Rockwell so I recommend you duplicate this if you make new ones.

This article may be too technical for some people and too basic for others but I feel it's essential to print this before someone shares my past experience on the highway. So check your front tires and inspect the bearings by putting the car on a grease rack (lots of luck) and grasp the top and bottom of the tire and shake it in and out. If any movement is seen or felt you had better find out what is causing the problem.



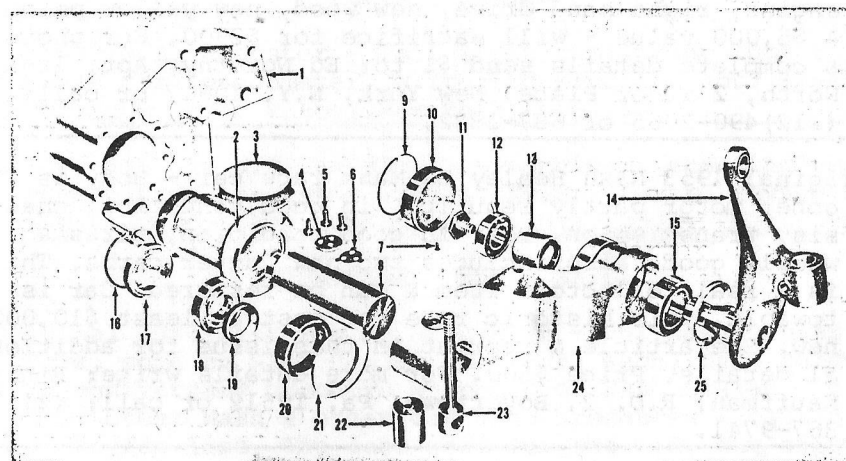
Picture #6

"O" rings installed on shaft & in housing.



- |                      |                            |
|----------------------|----------------------------|
| 1. Spindle Bracket   | 6. Thrust Washer           |
| 2. Retaining Pin     | 7. Selective Thrust Washer |
| 3. Oiler             | 8. Lower Bushing           |
| 4. Upper Bushing Cap | 9. Knuckle Pin             |
| 5. Upper Bushing     | 10. Knuckle Spindle        |

FIGURE 2—Knuckle Spindle and Spindle Bracket.



- |                                  |   |
|----------------------------------|---|
| 1. Front Suspension Box          | 14. Spindle Bracket                           |
| 2. Bearing Housing               | 15. Outer Bearing (Needle Bearing)            |
| 3. Lower Spring Seat             | 16. Lock Ring                                 |
| 4. Inner Bearing Retainer        | 17. Bearing Cap                               |
| 5. Retainer Cap Screws           | 18. Main Shaft Inner Bearing (Ball Bearing)   |
| 6. Retainer Lock                 | 19. Inner Bearing Spacer                      |
| 7. Lock Screw                    | 20. Main Shaft Outer Bearing (Needle Bearing) |
| 8. Main Shaft                    | 21. Outer Bearing Felt Washer                 |
| 9. Lock Ring                     | 22. Sway Bar Anchor Sleeve                    |
| 10. Bearing Cap                  | 23. Sway Bar Anchor                           |
| 11. Bearing Retaining Screw      | 24. Trailing Link                             |
| 12. Inner Bearing (Ball Bearing) | 25. Outer Bearing Felt Washer                 |
| 13. Bearing Spacer               |   |

FIGURE 3—Exploded View Front Suspension.

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