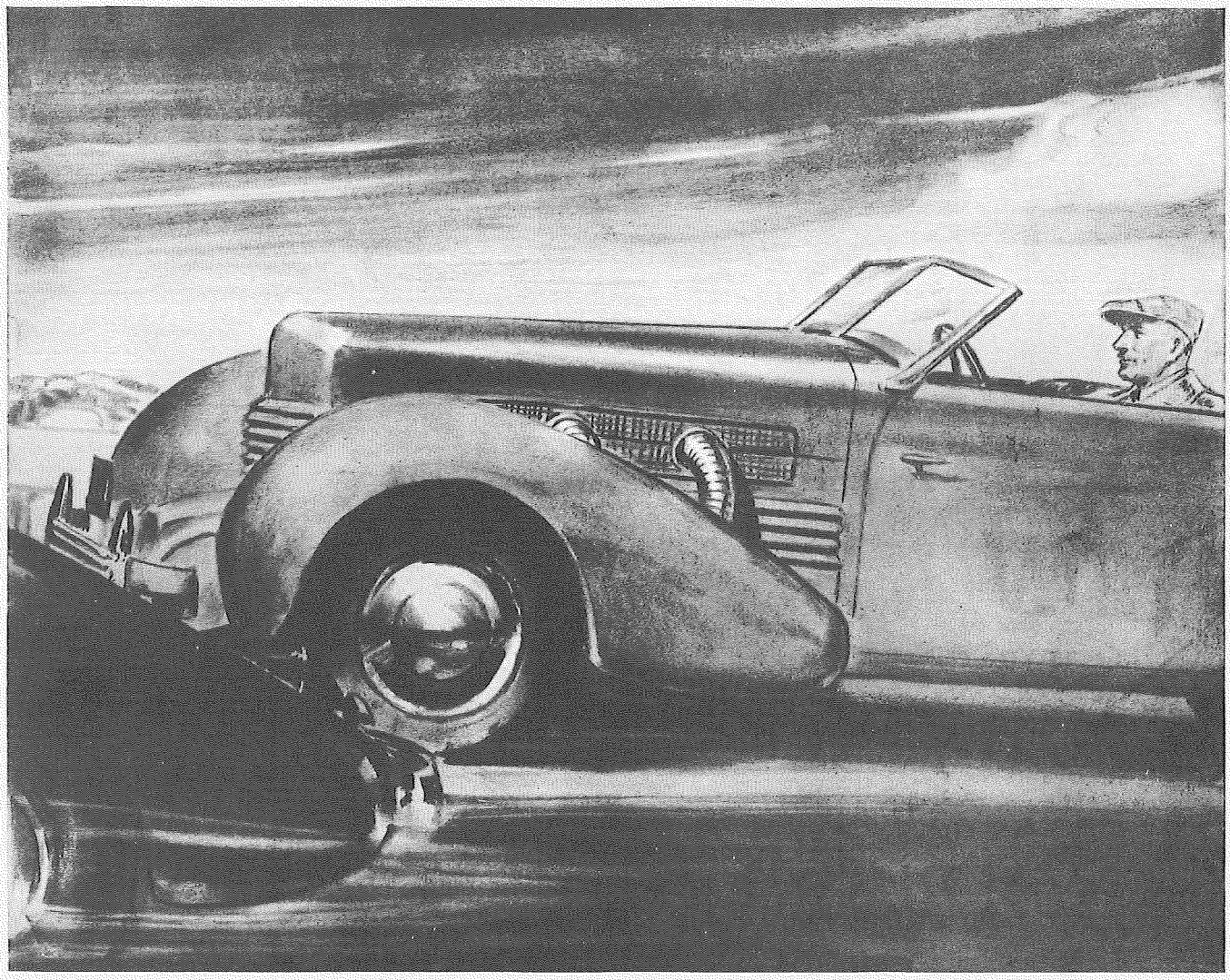
THE BUMPER GUARDIAN

FALL 77 - WINTER 78



THE BUMPER GUARDIAN

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The Pacific Northwest Region was chartered by the Classic Car Club of America in 1963. It is composed of Washington, Oregon, Idaho and British Columbia, Canada.

The Classic Car Club of America is a non-profit organization incorporated under the laws of the State of New York. The Club seeks to further the restoration and preservation of distinctive motor cars produced in the period from 1925 through 1948, to provide a channel of communication for those interested in such cars, and to bring together in good fellowship all who own or admire these finest examples of automotive craftsmanship. The sole requirement for membership is a demonstrable interest in a Classic Car or Cars. Application for membership should be sent to Ted Barber, 2306 Franklin Avenue East, Seattle, Washington 98102.

THE CAR OF THE DAY

"THE CLASSY ONES"

February 12th	**St. Valentines Day Party - Jim Tallman** (1929 J Duesenberg L.W.B., Murphy)
April 24th	**RROC/CCCA Tire Kicking Social - Hal Dahl** (1928 Franklin Boatail Roadster)
May 14th	**Spring Driving Tour - Pete Manello** (1948 Lincoln Continental) Missed each meeting point on the Tour).
July 30th	**Forest Grove Concours - Herb Schoenfield** (1929 Bentley Speed - Six Tourer). Won Forest Grove Sweepstakes Award for his contribution to hobby.
August 5th	**Sudden Valley Summer Meet - Carl Bomstead** (1941 Packard Limo). Sick Packard - Least gas, etc.
October 8th	**Columbus Day Garage Tour - Wayne Weihermiller** (1937 Cord 812 S/C Phaeton). Driven across Cascades from Richland for Garage Tour.

PACIFIC NORTHWEST CARAVAN

HUGE SUCCESS !!!!!!

PHIL SCHWARZ

Those were the headlines and comments on dozens of letters and phone calls received by your Regional Officers in 1970 and 1974. With your help and participation those will again be in the "headlines" following the 1978 Caravan.

The reason for our past successes (not reasons) is your hospitality. Sure our scenery and resorts are superior and our planning and execution has been excellent but that isn't what makes our Caravan so successful and fun. Time and again when we run into participants from around the U.S. and Canada who remark about our scenry, our facilities, and planning; but they talk on and on about our hospitality, our friendliness, and the fact that within 24 hours there are no "strangers" on the N.W. Caravans!! It will be a week of super fun and enjoyment making new friends-renewing old friendships (yes, we'll have a lot of repeaters this year..., Stansburg's Stolarcyk's. Browning's, Andrew's, Weston, Klusman's, Peterson's, Kerr's, etc...etc..); that's the real fun of the Caravan... and we suggest you plan on NOT missing it.

Continued On Page 29

THE CORD LEGEND

The recent death of E.L. Cord prompts
a nostalgic look at the man and his cars.

by
Tim Cline and Mike Faulknor

It is a strange thing about legends, live men usually don't make very good ones. E.L. Cord was an exception - so much that the truth about him will never overcome the myth.

Those who were surprised to hear of Cord's death (January 2, 1974. in Reno, at age 79) were more astonished to discover he had survived until 1974. Most thought he had died three or four decades earlier.

He had such an impact on the growing auto industry that his name still gains instant recognition among enthusiasts. Quite a compliment considering the last Cord was built over two generations ago. He took the dying Auburn Automotive Company, with his own money and a flair for selling cars, and parlayed them into fame and fortune.

He lost interest in the company and left Indiana under circumstances that still provoke controversy. Thirty-eight years passed before a member of the Cord family was to return to Auburn.

A few Auburn natives are still bitter but mostly there is pride in the cars and the heritage. More than anything else, there are still the cars, those magnificent machines which will remain as a tribute to the man, the spirit, and the legend.

Artists are rarely fully accepted in their prime. But Cord's machinery, like fine art, has appreciated far beyond fantasy. The splendor of an Auburn, Cord or Duesenberg serves as a memory of a glamorous era. In these nostalgic days, the cars are evergreen.

Cord was like an early-day Howard Hughes, an astute businessman who would do things himself if necessary. He drove the Auburn 8-88 to an American stock car record, the first American production car to top 100 mph. His life from then on became less colorful, but he emerged again in 1956 to become a Nevada state senator.

The famous Cord 810s and 812s used front-wheel-drive and with their futuristic styling, immediately caught the public's fancy. But production problems hampered sales and they faded away.

Then there was the Duesenberg, a car even today unsurpassed in majesty. Fred and August Duesenberg were racers, not salesmen. Cord recognized this and set them loose designing America's greatest classic car while he undertook the marketing. The combination produced automobiles for Clark Gable, Gary Cooper, Mae West and the Kings of Spain and Italy.

Errett Lobban Cord hit Auburn, Indiana, in 1923 with $100,000 looking for an investment. He had gathered this modest fortune in three years, selling Moon Automobiles in Chicago.

The Auburn Company was about to go under and the Eckart family (who had the controlling interest) welcomed the capital and the entrepreneur. In exchange for his money, Cord was made vice president at no salary, only a commission of 20 percent.

There were 700 Auburns sitting unsold in the factory parking lot when Cord took over. He cleaned them up, added some chrome and razzle-dazzle, and in 1924 sold over 2000 cars turning a $200,000 profit for the company.

The L-29 Cord was introduced in 1929, the first front-wheel-drive production car to capture the public's interest. In 1931 Cord built 34,000 cars and rose from 34th to 13th largest car maker in the country. These automobiles were rivaled only by Stutz in their emotional and engineering appeal.

But even the mighty Auburn, Coed and Duesenberg marques could not escape the depression forever. In 1932 the company lost money for the first time under E.L.'s leadership. He began to lose interest in the company and in 1935, after receiving several letters threatening to kidnap his children, took his family on a two-year tour of Europe. He never went back to Auburn.

In 1936 the 810 and 812 Cords were introduced, too late, and by year's end, car production had stopped forever. In 1937 the company was sold to a New York banking firm for over $2.5 million. In 1939 it went bankrupt. Probably, not even E.L. could have saved it.

The Auburn, Cord, Duesenberg cult today is one of the most close knit groups in the country. Enthusiasts from all over the world meet in Auburn, Indiana each summer.

When A. Sidney Ayers, president of the Auburn, Cord, Duesenberg Club was told of the death of E.L. Cord he said, "Cord was an outstanding merchandiser and as far as we at the ACD Club are concerned, put out three outstanding products. He had never attended any of our meets, but last year his son Charles Cord was honorary grand marshal at Auburn. He (Cord Sr.) withdrew from automobile activity in the '30s after the threats on his children and never seemed interested after that, but the people around Auburn still talk of him fondly and they had the utmost respect for E.L."

Although E.L. Cord has died, the aura of magnificence that surrounds his cars still lives. He lived and built for speed and it seems quite proper that he died 15 days before the imposition of the first speed limit in his home state's history.

A RETURN TO AUBURN

by

TOM ARMSTRONG

This story begins in Dallas, Texas in 1963. But first, some earlier background information. Susan and I had gone to college together in Dallas and our son Brad was two, and Lisa was on the way (years later, Lisa was to ask "Would the Cord be finished before she was married?).

I had been interested in cars (antiques, classics, sports and yes, even hot-rods) since a 12-year-old growing up in the small town of Marietta, Oklahoma. Through these early years I owned some 13 different Model "A" Fords and two Chevy Hot-Rods. One of these Fords, a 1930 Roadster, was a complete and authentic restoration done over four years while in college. Susan had loaned me $40 of the $140 needed to purchase this car. We later sold this roadster for a fabulous price of $1,450 to buy an original 19,000 mile 1930 Ford touring car. What a car this was! Probably one of the best "A's" in Texas....it later won second in the National Model "A" meet. Our son, Brad, went on his first car tour in this Ford at age six weeks.

I later found a 40,000, 1948 Lincoln Continental which had been chauffeur driven from it's home base at the Dallas Athletic Club. This was our chance to own a Classic, but it forced the sale of the Ford touring. We than joined the Classic Car Club of America and enjoyed the people and "big" cars so much. The Lincoln was such a nice original car, it took second place awards twice in Grand Classic competition. This is when I began to learn what it takes to win in national competition.

Now with this background, the central character emerges (pun: Serial No. C91-182, Body by Central Mfg. Co.) I had heard that a Cord was stored in an old garage in an older section of Dallas. I finally met the elderly owner, Martin Rosendorff, and we became fast friends. Martin, at age 79, smoked 25 cigars a day, enjoyed plenty of bourbon, owned six '46-'48 Lincoln Continentals and had met E.L. Cord during the 30's at a San Francisco Penthouse party....thus he purchased the Cord.

We often talked about how neat it would be to buy the Cord and restore it--and take it back to Auburn, Indiana. This became a continuing dream!

One Sunday morning I called Martin and said "I couldn't live without the Cord!" That same day we reached a handshake agreement--I take the Cord out of the old garage and place my Lincoln back in it and when I could accumulate some cash, I would "buy" back the Lincoln (no dollar amount was ever discussed).

The next day we shoveled out the gravel driveway to allow the garage doors to swing open for the first time since 1954 and I saw my Cord for the first time. We pulled the Cord out, drove the Lincoln in, and towed the Cord home with my hot-rod '57 Chevy (this trip burned-out a good drag racing clutch!) The next morning, daylight revealed a rusty, tired and worn-out 1936 810 Cord Phaeton complete with fake leopard-skin upholstery and Auburn "Super-Charged" plates on the hood, but otherwise fairly complete.

When I called Glen Pray of the Auburn-Cord-Dusenberg Co. to tell him about my newly acquired "Super-Charged" Cord, he asked how I determined that it was blown. I answered "It says so on the hood",

he replied "Uh, oh! Little was I to know what an important contribution Glen was to make over the next 14 years with parts and authenticity information. About this time I joined the Auburn-Cord-Duesenberg Club which was to be the greatest single source of information during the restoration years.

During the next few weeks I got the car running and shifting and drove it around locally from time to time. Later I began disassembling small parts and restoring them while collecting other new parts. Lisa was now with us "vying" for our time and attention.

The restoration was then interrupted by a job transfer in 1965 to the Chicago area which was the Cord's first big move. In the Chicago area we met Jim & Sylvia Corbin who helped tremendously with the continuing restoration. Jim Howell and Don Mates also made important contributions to the restoration project. By 1969, the Cord had been <u>completely</u> disassembled, sand blasted, and the mechanical restoration (engine, transmission, front frame, and under-body) was about 80% complete. This time period was very productive, but my ever increasing standards of workmanship and authenticity dictated that most of this "progress" was later done again. At this point I returned to Dallas and repurchased my still garaged Lincoln for $622.

In the summer of 1969 I was transferred to the Seattle, Washington area requiring that the Cord be packed in boxes and moved "like good china" in a moving van. The next year proved to be one of outdoor Northwest enjoyment and very little Cord progress except for the parts collected and some detail work.

The summer of 1970 brought a surprise job transfer to Valley Forge, PA, and another moving van ride for the well-traveled Cord. (At this point, the Company moving policy was getting more rigid, but I guess they needed my talents). These next two years were sort of lost ones for the Cord--Susan and I played a lot of tennis, attended Buck Hill Falls, Hershey, the Grand Classic, etc., but the Cord only received minor attention. During this time period my restoration quality standards really increased.

In 1972 I made an important decision to resign from my present company and join George Sedlock in the purchase of Ridgway Packaging Corp. back in the Seattle area. I could not have faced my former employers unless I move the Cord again in a moving van on my <u>own</u> money! So, back to Bellevue, Washington in boxes and plastic bags. Is this a moving van record? 8,897 miles!

It took until 1974 to get settled again and then the <u>serious</u> restoration continued. All of 1974, 1975 and 1976's spare time and money were dedicated to the restoration. Stan Murray did the body work and finish painting. Karl Pearson did the top and upholstery, Larry Beckley did the plating work, and Susan and I did the assembly, the engine area, the undercarriage, the wiring, etc., etc., over and over until I almost liked it. Other Cord owners in Washington helped with parts, advice, and labor time and time again....Dick Herdeck, Sid Merrow, Denny Aker, Wayne Weihermiller, and especially Buz O'Connor....what friends!

According to Webster, the word restore is defined as: to recover from ruin or decay; to repair, to renew, to replace, to reinstate, to revive. We did all of <u>this</u>....What Webster didn't mention was the blood, sweat and tears required!!!

One of the big events of 1976 was the Cord's 40th birthday which we duly celebrated on May 19th with a party complete with cake, ice cream, ribbons, presents, etc. The Cord showed its appreciation by cranking over it's engine for the first time. The next big happening was the decision to disassemble the car and repaint it--this really paid off later with full points for paint.

The next highlight was to achieve the first completion date and drive the Cord around the block on Christmas Day....the Cord was basically ready, but the weather wasn't so Susan, Brad, Lisa and I actually toured the neighborhood on December 26th, minus bumpers, radio, and a few other details.

At this point I had determined in my mind the goals I wanted the car to achieve....to prove to myself the quality and authenticity level of the restoration. These goals were to enter the car in competitive judging three times: The Grand Clasic, Forest Grove Concours, and return to Auburn for the 25th Annual Auburn-Cord-Dusenberg meet on Labor Day. My real inner goals were to win these events.... not just attend them.

The next six months were spent making small improvements in details and particularly in authenticity areas. Stan Gilleland of Wellington, Kansas provided much information and help during this period. Stan Murray worked countless hours (but somehow he counted them) at night and on weekends helping correct small details that helped make the difference later on....what a loyal, dedicated friend and craftsman!

My big plan was to test drive the car for 100 miles, change to new tires, get it super clean....and then use an enclosed trailer for the trips. The Cord ran so well and was so much fun to drive, I could hardly resist driving it....but my priority objective to "show" the car prevailed.

GRAND CLASSIC

The countdown for the trip to the Santa Barbara Grand Classic (2500 miles) was second only to a NASA shot! The Cord was ready-the trailer was ready--and the '76 Cadillac Eldorado convertible town car was ready (I thought). The night before we left, Brad and I were installing the big mirrors on the Cadillac, a big crash occurred (this is the nicest way to describe it) resulting in a scratched and dented front fender....then during the ensuing barrage, Brad closed the garage door on the rear fender breaking out the tail light! This omen should have told an Indian to leave the Cadillac at home....but we pressed on! The first day of the trip was uneventful, but from then on it was hell! The Fuel-Injection control lines melted in the heat generated climbing the mountains and we were finally stranded in beautiful Willows, California for three days over the Fourth of July (this is another story). We eventually got going only to die again along side the road in the Santa Cruz mountains. (Fuel Injection failure, overheating, air suspension failure, and a broken rear window). After two more days of Cadillac restoration (this is called a running restoration, or all show and no go!), we finally made it to Santa Barbara. The Grand Classic was a tremendous event....never had we seen such fabulous high-point cars. The Cord looked great, but during the judging one of the windshield wiper controls came loose leaving the Cord with only one wiper and me with no pulse! Otherwise, the judges liked the Cord; 99.0 points and First Prize in Auburn-Cord Primary. We now had a Senior car in the Classic Car Club of America....one objective achieved!

FOREST GROVE CONCOURS

The next showing was to be August 31st at the Forest Grove (Oregon) Concours. With a month to prepare, I completely changed the exhaust system, improved the wiring and continued to work on details. And yes, it was necessary to get a new tow truck that would handle the trailer. Thanks to my business partner, George Sedlock, we arranged for a 3/4 ton Chevy Suburban which solved all of the towing problems!

By Sunday of the Forest Grove Concours, we were on the beaufitul Pacific University campus by 6:00 a.m., preparing and polishing the Cord for judging. Our white-clad pit crew (Susan, Brad, Lisa and I) had the Cord at a peak never reached before. Again the judges liked the Cord and everything worked this time....First in the Open Classic Class and Best of Show with 385 cars being judged! This was really a thrill for me and I think for the first time, Susan and the kids realized that we had a super nice Cord!

AUBURN-CORD-DUSENBERG ANNUAL MEET

This final goal was most important to me. I really wanted to return the Cord to Auburn, Indiana and photograph it in front of the original Auburn-Cord-Dusenberg Showroom....drive the Cord through the beautiful old streets of Auburn and display it on the downtown square....and finally, meet the designer of the Cord, Gordon Miller Buehrig.

The trip to Auburn was as enjoyable as the California trip had been devastating! But, no one knows how far it is from Seattle to Auburn until you pull a 7500 lb. trailer at 55 MPH (5000 miles round trip--would you believe 722 gallons of gasoline?)

The original A. C. D. Co. building is now a beautifully restored Museum and served as headquarters for this sensational 25th Annual Meet. The Saturday morning judging was closed except to A.C.D. members-then the big parade through the streets of Auburn--42 Cords, 42 Auburns, 21 Dusenbergs, and 5 L-29's....this thrilled me to a point of high emotion! Gordon Buehrig was Grand Marshall in the "Year of the Cord" parade and the weather was cooperative. After The parade, the cars were displayed all around the courthouse square. Thousands of people were on hand to appreciate Auburn '77.

On Sunday, the Awards banquet took place at noon in the A.C.D. Museum. Our Cord was voted the A.C.D. Club's Silver Anniversary Popular Appeal Award (by vote of the A.C.D. members), First in Primary 810-812 Cord, and the Gordon Buehrig Trophy for the Best Cord. Gordon himself presented the trophy to me in the very building in which he had designed the car in 1935!

What a rewarding conclusion this was to a 14-year quest to restore a 1936 Cord 810 Phaeton and return it to Auburn! Thanks to all of you, and especially my family, for helping and understanding throughout this restoration--only you and I know "what it takes" to return to Auburn.

THE CORD 810 PHAETON

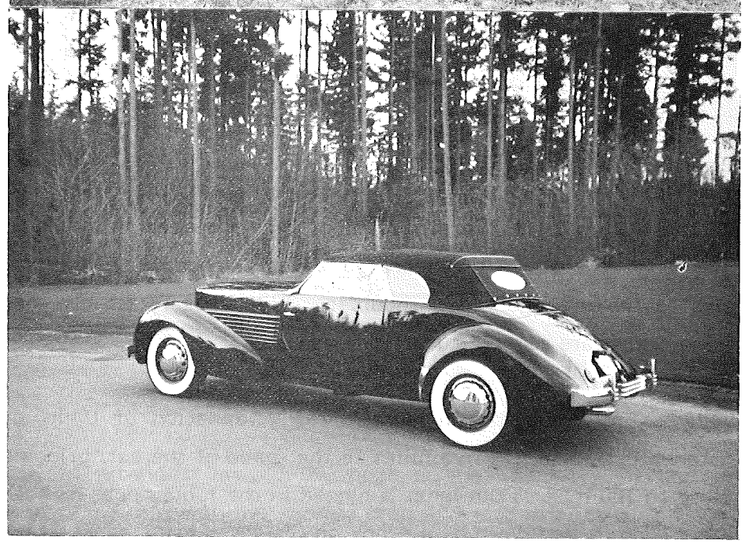
by

Wayne

Weihermiller

An exciting machine with a distintive character of its own and features that Detroit didn't catch up with for many years. In the gray days of the depression, the Cord sparkled as the most advanced and futuristic automobile available. A new Ford was $500.00, but if you had $3,000.00 you could set yourself apart from the crowd in a Cord. These cars gave encouragement of great things to come in automobiles of the future, but this was short-lived as Detroit's big four turned most cars into bland imitations of each other in order to be financially successful and satisfy the general public. I remember the disappointment that I felt at not being able to find the Cord on display at the 1938 Chicago Auto Show; gone was that something special in automobiles.

The following article is reprinted from Motor for November 1935, Annual Show Number and I have made the necessary changes to reflect the phaetons charastics.



NEW CORD FRONT DRIVE

Lively Fast Car of Novel Construction Has 125 hp
Vee Eight Engine and Weighs Only 3500 Pounds

One of the most interesting automobiles seen in many years is the new Cord front-drive built by the Auburn Automobile Co. Not only does it present new thoughts instyling but many of its features of construction are equally novel. It is equipped with a 125 hp vee

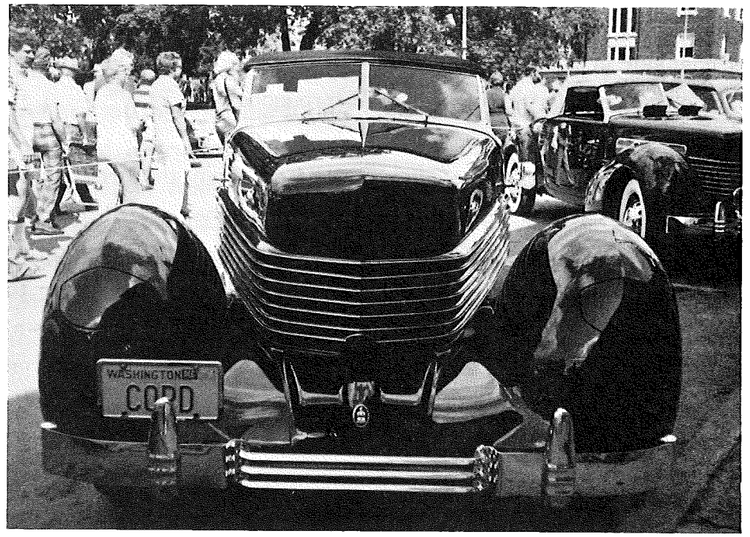
eight engine, has a wheelbase of 125 inches and yet weighs only 3500 pounds because of its compact front-drive power plant and its unique all-steel body with in-built frame.

It has a four-speed transmission of new design in which second, third and fourth speeds are equally silent. Third corresponds to direct in other cars while fourth is comparable to overdrive since it slows the engine down about 30 per cent. Front wheels are independently sprung on longitudinal arms in connection with a single transverse leaf spring. Rear springs are half elliptics supported by a tubular rear axle. It is said that the total unsprung weight has been reduced 39 per cent.

The elimination of the conventional propeller shaft and banjo rear axle - thanks to front drive - permits locating the floor only 10 5/8 inches from the road and therefore, although headroom is the same as in the Auburns, the overall height of the closed cars is only 60 inches while the convertibles are 58 inches. The roof of the car comes to the average man's shoulder. The floor is so low that running boards are superfluous.

Headlamps fold into the fenders. The elimination of their air resistance is said to add five miles to the speed of the car, bringing it close to 100 mps. Each lamp is hinged in the fender near its base and is swung up and down by a crank on the instrument panel which turns a flexible shaft within a flexible tube running to a worm which is meshed with a sector on the lamp.

This unusual looking automobile was designed on the principle that every detail had to have a practical reason for its adoption, although in each case the result has added to the striking appearance of the car as a whole. Many examples are given below. First is the use of



louvers extending around the hood compartment. They permit a ready flow of air to the raditor core and also provide an unusually large area for its escape from the engine compartment. The latter feature benefits the engine in general and carburetion in particular. Also, in conjunction with effective sealing of the pedal openings against infiltration of air, it provides an unusually cool driver's compartment. The divided vee windshields are sloped at an angle of 45 degrees to reduce wind resistance and to give improved overhead vision. Doors are hinged to the center pillar. To suppress wind noise, the hinges are concealed. The rear deck panel is designed for smooth air flow. It has a long, graceful slope, has two flushmounted rear lights, a gasoline filler opening reached through a flush door,

and license plate and lamp mounted flat against the center of the rear luggage door. The tail pipe extending from the rear of the body is chrome-plated. The hub cap which covers the whole wheel disc has openings in it which coincide with the brake drum ventilating holes in the disc. Safety glass is used throughout.

The hood is hinged at the rear and lifted from the front, thus offering easy access to the top of the engine. Still greater accessibility is obtained by removing the louver unit by undoing two nuts at the front and pulling out two pins which fasten the rear to the cowl. The transmission and the Bendix shifting mechanism, located in front of the differential, is reached by removing the apron between the front fenders by removing four screws.

Ventiliation of the front compartment is obtained by opening the left cowl ventilator and by opening the windshields slightly to uncover a series of ports in the base of the windshield from through which air enters the front compartment by passing under the instrument panel assembly. The right "cowl ventilator" conceals filler openings for oil and water. The top of each door window pane extends further than usual into the upper edge of the door with the result that when the window is lowered a trifle it is opened along the sloping edge of the glass to provide a ventiliating slot.

No frame is required to support the body because it has two deep box section channels built into it. At the front end is a heavy cross member from the side channels extend forward. A strongly braced frame unit with channel side rails is used to carry the power-plant and to provide a mounting for the front suspension. These channels telescope snugly into the body channels and the two are bolted together. Additional bolts secure the unit to the front body cross member. More than thirty bolts are used to attach these two major

car units to one another. A steel floor is used. Instead of a horn button there is a large chrome=plated ring which may be pressed with either thumb without removing the hands from the wheel.

The instrument panel is impressive. The dials are large and readable and are set in an engine turned chrome-plated cover. In addition to the usual instruments there is a tachometer. An arrow indicator tells whether headlights are on the high or depressed beams. Four air-plane type levers which move up and down are used for headlights, instrument lights, throttle and choke. The cranks for raising and lowering the headlamps are located at right and left of the instrument board. At the right is placed a clock with a dial for the minute hand which reads from 1 to 60 minutes in addition to the dial for the hour hand.

Although the rear seat is close-coupled there is plenty of leg room because of an ample recess under the front seat. Cushions are unusually soft. The hand brake is hung from the left side of the cowl and since the gearshift lever is a finger-tip type on the steering wheel, the floor is clean except for the pedals. A Startix is used to operate the starter.

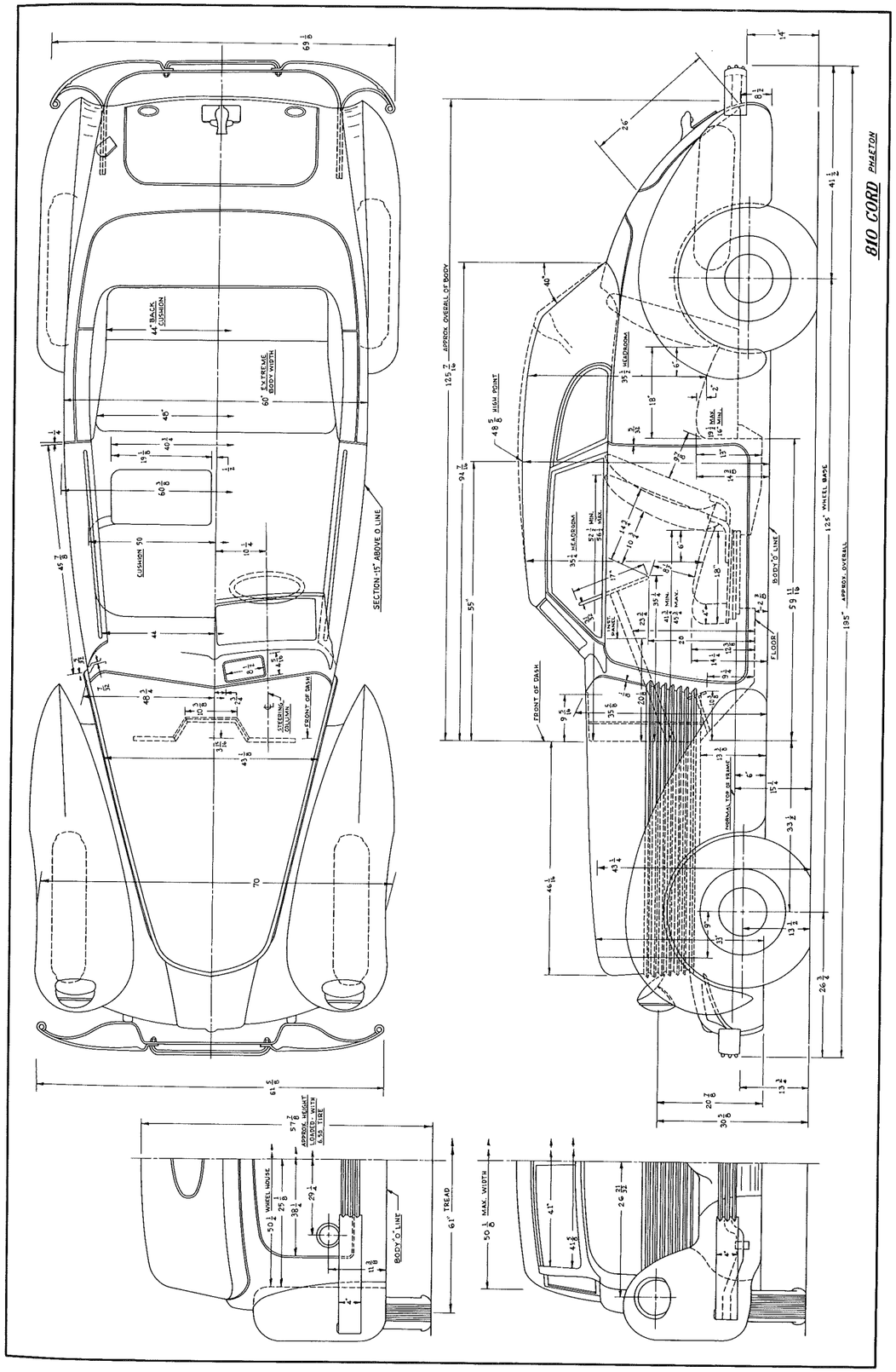
The engine is a Lycoming with a comparatively large bore and a short stroke, $3\frac{1}{2}$ by 3 3/4 inches, and a piston displacement of 288.64 cubic inches. It develops 125 hp at 3200 rpm. The cylinder blocks and the upper half of crankcase are cast in a single piece. The crankshaft has three $2\frac{1}{2}$ inch main bearings and is counterweighted. Pairs of connecting rods are placed side by side. The camshaft is driven by a silent non-adjustable chain at the rear. The voltage-regulated generator is located at the rear of the valve alley and is driven by vee belt from the camshaft while the fan and water pump are belt-driven from the front of the camshaft. The intake manifold, the cylinder heads, and the pistons by Ray Day, are

aluminum alloy. The compression ratio is 6¼ to 1. The carburetor is a 1 1/8-inch downdraft duplex Stromberg and is equipped with manual choke. The intake manifold is a duplex four-cylinder type. Each half supplies the two end cylinders in one block and the two center ones in the other. The fuel pump, which is mounted on the intake manifold casting is operated by the camshaft. The engine is mounted in rubber at two points at the rear and one in the front.

In many respects the most interesting feature of the car is the transmission which, by the way, is the furthest forward unit in the driving system. Just to the rear is the differential assembly and next to that is the 10-inch semi-centrifugal Long clutch which is located at the flywheel. The clutch drives the long mainshaft from whence power in all speeds is transmitted to the countershaft by gears. There is no direct drive. The spiral bevel pinion which is integral with the rear of the countershaft drives the ring gear. From the differential, a shaft equipped with two Rzeppa constant-velocity universal joints runs to each front wheel. Silent helical gears with synchronized meshing are used on second, third and fourth. Transmission and differential are contained in a single casting bolted to the flywheel housing.

For greater silence these teeth have a finer pitch and are cut on a 45-degree angle. The countershaft helical gear cluster is one unit. Low and reverse gears have spur teeth and are engaged by sliding a gear on splines on the countershaft. Both main and countershaft are mounted on a dual annular ball bearing at the front and a single annular ball bearing at the rear. Front bearings take both radial load and thrust. The spiral bevel pinion is adjusted by shims on the countershaft. It should be noted that the countershaft provides an exceptionally rigid mounting for the pinion.

Mainshaft gearing is lubricated by a pump located at the lower front corner of the transmission. It is a gear type, operated by the differential pinion shaft. Oil is drawn from the transmission



housing, pumped through a filter and delivered to the hollow mainshaft from whence it is distributed to the various wearing surfaces. The rotation of the ring gear keeps the transmission housing filled up to the lower edge of the countershaft.

The transmission in the Cord is far simpler than other types heretofore used in front of the differential. This transmission location, of course, is desirable because it saves space. Due to the improvement in recent years in the silence and longevity of transmission gearing, the need for direct drive is no longer imperative and since the transmission is far away from the passengers and subject to the same noise insulation as the engine any slight noise which the gears may make is not noticeable although it might be if the transmission were under the floor boards. In fact, the car is so silent that tires with special treads were necessary because the noise of ordinary tires was objectionable, it is said.

The Bendix finger-tip shifting mechanism is similar in principle but different in detail from the Electric Hand used on Hudsons and Terraplanes. A vacuum piston operates the shifter rails while a vacuum diaphragm moves the shift mechanism from one rail to another. These units together with the electrically operated vacuum control valves are mounted on the transmission and are readily accessible by removing the apron between the fenders. The finger tip gearshift lever on the steering wheel is a conventional H-slot design for the three forward speeds and reverse while an additional slot at upper right engages fourth speed. The finger tip lever must be lifted slightly to obtain reverse.

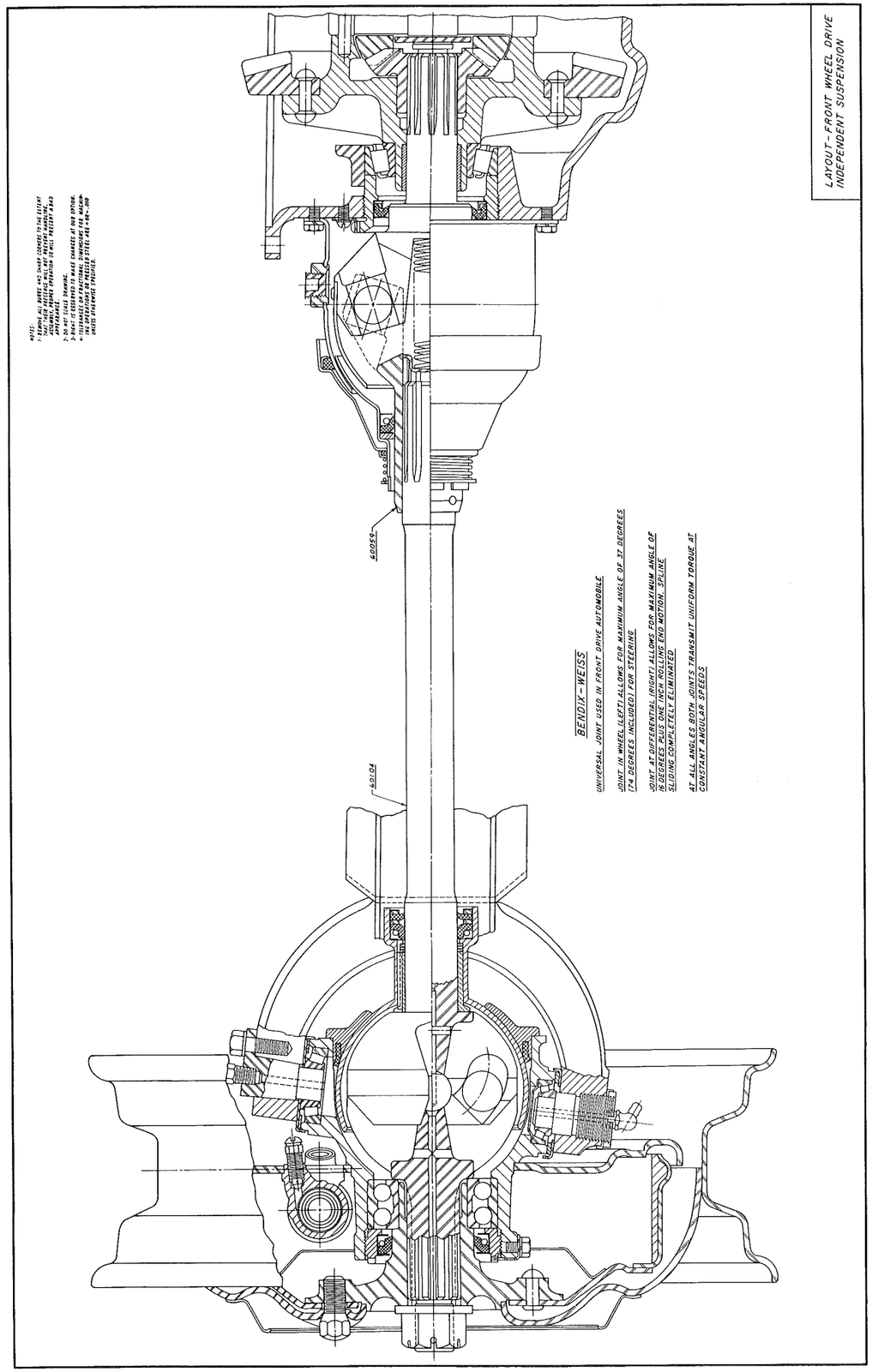
From a performance standpoint, third gear corresponds to conventional high, although the engine is so large for this moderate weight car that this gear is higher than usual, 3.88 to 1, while fourth gear has the unusual ratio of 2.75 to 1.

In fourth gear the engine rotates 29 per cent more slowly than in third-only 2000 rpm at 60 mph. The reduction in speed is approximately that provided by overdrive. Engine speed is so moderate that the engine is usually smooth and silent, and gasoline, oil consumption and wear should be less than usual. In a recent high-speed trip from the factory to the Pacific Coast and return the fuel economy was better than 16 mpg. Second gear with an overall ratio of 5.80 is a fast and exceptionally lively gear especially when it is noted that the weight-to-power ratio is only 28 pounds per hp.

Inasmuch as the three upper gears are equally silent it is believed that the driver will use third and fourth according to his need and that he will not try to do all his driving in fourth as he would insist upon doing if fourth were direct. The arrangement of the lever positions in the gearshift gate also will assist him, it is believed, in selecting his gears intelligently. Third gear position is the same as for the high he has been accustomed to and so it should be the gear that he would normally use at moderate speed. He cannot shift to fourth by habit because no previous cars he has drivenat least in many years-have had such a gear lever position. Before going to fourth he must first come to the decision that he would be better off in that gear.

In explaining the excellent riding quality of this car, Auburn engineers point to the fact that not only is the front end independently sprung but the unsprung weight at the rear of the car is exceptionally low because a simple tubular axle takes the place of the conventional type having a banjo with a differential assembly inside.

Prior to the final development of the Cord, tests were run on experimental rear-drive cars in which it was demonstrated that the best ride was obtained by independently springing all four wheels, next best was a car with an independent rear suspension and



conventional front-because of the elimination of much of the unsprung weight at the rear-third was a car with independent front springing and conventional rear, and last was a car with conventional springs all around. The Cord, it is pointed out, gives the same fine ride as a car with independent springing all around because the rear has comparably low unsprung weight. The front spring rate measured at the wheel is 139 pounds per inch which the rear spring rate is 120 pounds per inch. Two-way Delco-Lovejoy hydraulic shock absorbers are used with inertia control.

The independent front spring suspension consists of a single transverse leaf spring secured at its center to a cross member and with each end linked to a sturdy box-section longitudinal lever arm which is pivoted on a shaft at its forward end. The outer end of the shaft is mounted in a Timken double row taper roller bearing which takes both radial and thrust loads. The inner end of the shaft is mounted in a needle bearing. At the rear of the lever arm is a heavy forged yoke which supports the kingpin bearings. It is curved to miss the drive shaft.

The front wheel assembly, including hubs, brakes, drums and universal joint and housing, is mounted into this forked yoke and held in place by two stub king pins. These pins have tapered shanks which fit into tapered holes in the top and bottom of the yoke. The ends of these pins extend down into the taper roller bearing and hold them in alignment. Each of these pins is held in place in the tapered holes by a capscrew. By removing these capscrews and tapered king pins the entire assembly can be readily removed when desired.

The front wheel is mounted on a preloaded double row ball bearing. As lines drawn through the contacts of these bearings intersect the axis of the wheel at points separated by about 2 inches, the arrangement is considered the equivalent of two single row bearings separated by the same distance. These bearings take thrust as well

as radial load, and make a very compact design. The outer race of the bearing is clamped in place into the universal joint housing which is mounted directly to the yoke. The inner race of the bearing is clamped between the hub forging and the end of the universal driving shaft. The lubricant of this bearing is sealed in place by a special seal just outside of the bearing.

With this type of suspension it is essential that the center line of the kingpin intersect the center line of the tire if wheel fight is to be avoided. Caster angle varies with spring deflection but it was found that this was no detriment provided it was held to a certain limit described as follows: At the center of the area where the tire contacts the road the tread cups up inside a nearly circular ellipse which is approximately 2 inches in diameter. The center line of the kingpin must come within this cupped area.

Center point steering is used with a vee-shaped intermediate steering arm extending forward from its pivot. The individual tie rods run diagonally back to the steering knuckle arms. The ball socket connections between intermediate steering arm and tie rods are on the same axis as the lever arms which support the wheels, thus giving perfect geometry. Rear wheels are mounted on pairs of Timken taper roller bearings. The spindle flange is bolted to the end of the tubular axle. The tube is dropped 5/8 inch below the spindle center to lowe the car that much.

Light weight centrifuse brake drums are used with 11 by $2\frac{1}{4}$-inch hydraulically operated duo-servo shoes. The hand lever applies the rear brakes by mechanical linkage. Tires are 6.50 by 16 six ply. Tread is 56 inches at the front and 61 at the rear. Fifty-five per cent of the weight rests on the front wheels when the car is empty.

Caravan ...continued from page 2

It's all "new" territory for the 1978 Caravan except for the final stop at everyone's favorite, Port Ludlow. Other highlights are the fabulous Otter Crest, Lake Quinault Lodge where we'll have the whole resort; fishing on the Quinault River (weather permitting); a picnic at Cape Lookout State Park; a salmon bake in Portland on a dock over the Columbia River, and rest and picnic at the Tallman Estate and museum.

So save your bucks and save the dates, July 29th to August 5th for a great week of Classic Car fun.

P.S. Oh yes..better get that "sled" ready too. RR owners start now!!! Blue Smoke Herstein promises to follow everybody--Siggys got a faster car - Peter is in charge (he volunteered) of planning more "drivers meetings" and wonder of wonders...there might even be a 31 Chrysler Imperial Lebaron Roadster registered and ready! I said might!!!

2nd P.S. .. Klusmans have requested a fire truck to accompany the Caravan this time!!!