

The Cord Models 810 and 812



NUMBER 35

RETAIL PRICE

UNITED KINGDOM TWO SHILLINGS

UNITED STATES & CANADA 50 CENTS

PROFILE PUBLICATIONS

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THE 1937 CORD MODEL 812 Supercharged Convertible Phaeton Sedan.

The Cord Models 810 and 812



by William C. Kinsman

A 1937 Model 812 Cord Supercharged Phaeton.

1936 was a memorable year in automotive history. It was the year of the Model 810 Cord. First unveiled at the 1935 Fall showings, it was the envy of the competition wherever it was exhibited. This new concept in automobile styling and mechanical innovation burst like a bomb upon the American automotive scene, virtually exploding all past concepts of engineering design, performance and styling. It was a revelation of the future and the pace-setter for years to come. A tremendous advance and a giant step forward from the past mediocrity, it took the industry and the public alike by complete surprise. Almost unheralded, it was the sensation of the 1936 Model Shows. It was distinctive, dramatic and daring, the ageless Model 810 Cord!

Unfortunately this exciting conception was doomed for extinction almost before it was introduced. It was veritably the last gasp of a tottering, independent, midwest auto-manufacturing Corporation which had sired three of America's greatest classics: the Auburn, the Cord and, the recognised king of them all, the mighty Duesenberg. Financial difficulties among other factors forced the company to end its production less than two years after the debut of its final effort to stay alive. The Auburn had ended its production with the 1936 models the same year that the Duesenberg displayed its last models (see Profile No. 6). The Cord Corporation was not alone in its struggles, the same fate was being suffered by almost all of the remaining smaller and independent producers during that critical era of serious financial depression.

In retrospect a most unusual set of circumstances was responsible for the creation and final production of the Model 810 Cord, a combination never before obtained and virtually impossible to duplicate since. The result of a happy circumstance of creative talent, expert engineering and a sympathetic, co-operative management which chose to be different, to separate itself from the commonplace and to emphasise its distinctiveness with daring innovations of both styling and mechanical design. The everlasting appeal and popularity of the three marques initiated by that Auburn-Cord-Duesenberg combination have since proved the rightness of its designs and production decisions.

The super salesman, Errett Lobban Cord, that organisational and sales genius whose leadership was

responsible for the amazing collection of top talent in all phases of his production complex, was the driving force behind the aggressive Corporation which did so much to shock the automotive industry out of its complacent and awkward growing pains era of utility transportation and into one of competition based on glamour, performance and luxury. This was the end of the transition from the buggy and square-box types of utility carriages to the eye-appealing creations of a highly competitive industry. An industry which has, since the advent of the Cord, stressed and promoted the outward appearance of its products rather than mechanical improvements of the standard drive system which has long since reached a high state of perfection and has been virtually unchanged in its basic form for the past two decades. The emphasis has been on styling and sculpturing, and regrettably so, as superfluous fins beget more superfluous fins, and multiple lights, front and rear, beget more multiple lights front and rear, *ad infinitum*. There is very little outward difference between comparative models of the various manufacturers today and even between the 'low price' and 'high price' cars of current vintage. It takes a second look and an experienced eye to distinguish a present-day Buick from a Chevrolet.

Who, if they were only reasonably aware, could fail to identify or recognise a Cord? Its distinctive styling is as acceptable today as it was the year of its introduction. All other offerings of the many manufacturers are definitely 'dated' and hardly fit into today's pattern of stylised sculptured obsolescence. A Cord will always attract a second look—and usually an admiring comment about its sleek good looks. Most younger generation appraisers, upon first viewing a well-restored example of the Cord, believe it to be the latest offering of a European sports-car manufacturer. They are immediately and indelibly impressed and it is sometimes hard to convince the youngsters that the car is actually thirty years old. What other American production automobile could possibly be comparable so many years after its debut?

BIRTH-PANGS OF THE MODEL 810

The original theme of the fabulous Model 810 Cord was first conceived in 1933, ostensibly as a 'Baby'



Errett Lobban Cord, the young sales and organisational genius whose name is perpetuated by the Cord automobile.

Gordon Miller Buehrig, the Chief Designer responsible for Cord styling; a photograph taken in 1966.



Duesenberg. This course of events in Duesenberg production thinking was dictated by a serious decline in sales of the high-priced luxury cars of the early 'thirties. At that time any obvious display of ostentation was considered in bad taste by those whose economic positions could easily have permitted it, and luxurious automobile transportation was one of the first of these obvious displays to be sacrificed by the well-to-do.

It was with this attempt to retrench that Gordon Miller Buehrig, then chief Body Designer of the Duesenberg Corporation, was assigned the task of creating a lower priced version of, and possibly a successor to, the mighty J and SJ Duesenbergs. Buehrig was well prepared and incorporated an earlier idea of his which had been previously entered in a design competition of another major manufacturer. This 'pet' idea of the young designer included an entirely new approach to front-end styling among other innovations. A disciple of clean design both interior and exterior (and mechanically when possible) Buehrig's original thinking included the familiar Cord trademarks. The disappearing headlights, located inboard on the front fenders in this early version, the horizontal louvre treatment of the famous 'coffin nose' and notably, the inclusion of two coolant radiators mounted in the airstream between the fenders (wings) and sides of the hood (bonnet). These replaced the usually centre mounted and then currently exposed radiator shells and grilles. An actual prototype body was built and mounted on an Auburn experimental chassis. Patent rights were applied for in May of 1934.

Before the mock-up was completed Buehrig was transferred from the Duesenberg styling division to Auburn early in 1934, in an emergency move to re-style the Models 850 and 652 Auburns of that year. This Auburn offering had failed miserably to impress the public and a face-lifting was imperative for the 1935 series then in work. The classic Model 851/852 Auburns were the aesthetically successful result of this hurried effort, with the famous boat-tail speedster the eye-catching leader of the series (see Profile No. 9).

When Buehrig returned to the baby Duesenberg project which had been shelved in the interim, a change had occurred in the front office planning. The new concept was now to be a front-drive car and would be known as a CORD to succeed the discontinued front-drive model L.29 Cord of 1929 to 1932. A quarter-scale model of the new car was completed by late summer of 1934 when the newly-married Buehrig took time off for a brief honeymoon.

He returned to find the project once more abandoned and replaced with an abortive attempt of management to salvage some Auburn V-12 components for the new design. This 'make-do' project finally was scrapped completely due to mechanical and other major deficiencies. These were emphasised not a little by a rebellious design crew that had been ordered to build a model mock-up, and had pooled their separate talents to make the morpious concoction as ugly as possible.

The time and money normally necessary to produce a new model in time for the Shows late in 1935, had by this late date reached a bare minimum, and a crash programme was hastily initiated to revive the much-delayed Front-Wheel-Drive project. The decision to build the new Cord was made at a crucial meeting of the Board of Directors in Chicago after some very hurried presentation material was prepared in one day by Buehrig and his assistant Dale Cosper. This was



The Design Department. Personnel left to right are: the late Paul Peter Reuter Von Lorenzen, the artist and illustrator who did all the airbrush renderings of cutaways, parts etc. Foreground with back to camera is Art Krueger, not a Department member. Dick Robertson (deceased) working on model of the Auburn "Gentleman's Speedster". Gordon Buehrig, Chief Designer responsible for the Cord styling. Seated at desk in rear is Vince Gardiner and, at far right, Dale Cosper, both assistants to Buehrig.

done at the request of Roy Faulkner, the Auburn President, whose faith in the Buehrig design was enough to convince the Board finally to go ahead with the all-new design. It was a very significant decision as later events were to prove.

This last minute decision put a very heavy work load on the already faltering facilities and only a super-human effort on the part of all concerned finally produced 100 hand-built cars which was the minimum requirement for a production run as ruled by the Automobile Manufacturers Association. The miracle of this four-month effort is that an end result as cohesive and as beautiful as the fabulous Cord did emerge.

Under the difficulties of limited fabricating facilities, and more important, an obviously tight financial situation, it is to the everlasting credit of Buehrig and the dedicated factory personnel that they created and produced the exquisite and unforgettable 810 Cord. These seemingly insurmountable obstacles often worked to the advantage of the overall result. For instance, only two basic dies instead of four were used to form the sedan doors. The rear doors were juxtapositioned fronts with merely an extra trim die for the rear wheel cutouts. This was an economy measure that

actually contributed to the overall continuity of design which is apparent in the total automobile. Several other fortunate 'accidents' also contributed to the pleasing configuration such as the 'metal wrapping' approach to covering the front-mounted transmission, and the perforating of the originally solid wheel covers—made necessary by a brake cooling problem.

This brilliant example of automotive design progress, born out of desperation during the depths of a major economic depression, is perhaps the most distinctive departure from contemporary styling ever to appear on the American automotive scene. As the majority of the nation's independent and smaller auto manufacturers were struggling to remain solvent, so the Cord was the last ditch effort of the midwest concern to stay in contention. However, the overwhelming effects of the business recession, coupled with some unfortunate production delays and the less-than-truthful castigations of the rival producers, spelled doom for the aggressive little corporation whose three products have become some of the most desired and cherished examples of classic automobiles coveted by collectors all over the world.

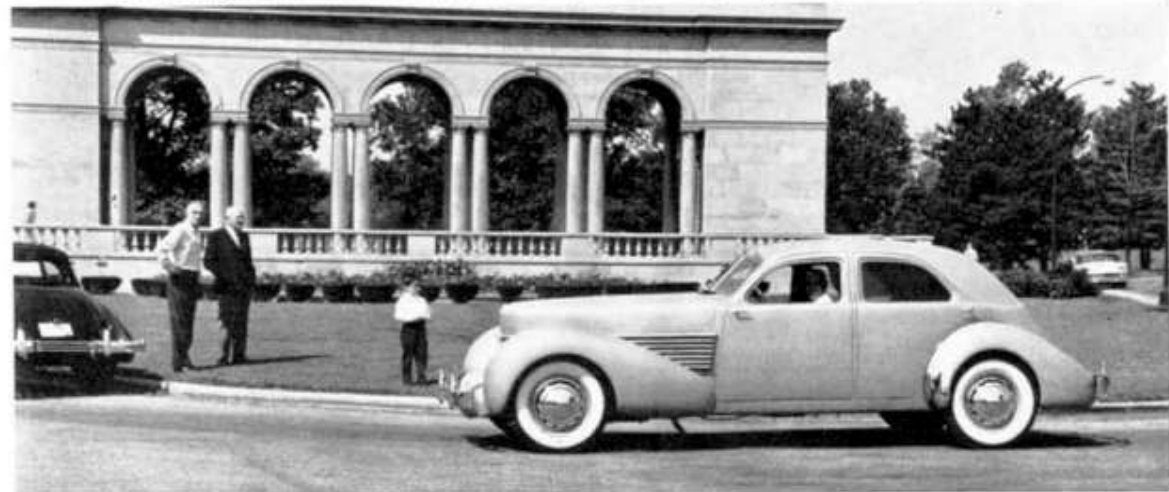
THE MODEL 810 BODIES

The design of the 810 Cord body incorporated many of the features which some have said made the marque 10, or even 20, years ahead of its time. Some of its features were still being copied by modern stylists as late as the mid-1960s. Specifically, the fold-away headlights of the Chevrolet Corvette 'Stingray' and surprisingly, at long last, the front-wheel-drive format of the Oldsmobile 'Toronado', the first American production car since the 1937 Cord to use the 'pull' instead of 'push' method of drive.

The Cord was available in four basic body styles in 1936. The Westchester and Beverly sedans and the two-passenger Sportsman cabriolet and four-passenger Phaeton convertible. In 1937 the line was expanded to include two larger Custom sedans and supercharged versions of all six styles were optional. Prices of the earlier models ranged from \$1,995.00 to \$2,195.00 increasing the next year to a basic price of \$2,445.00 through \$3,060.00 with the supercharged series beginning at \$2,860.00 and ranging to \$3,575.00 for the top of the line Supercharged Custom Berline.

The difference between the Westchester and Beverly sedans was purely in upholstery pattern. The Westchester interior was finished in a plain simple broad-

An excellently restored Westchester (125" wheelbase) sedan, the original 'fastback' model of the 810 series.





The very rare hardtop coupé. Only one is known to still exist out of possibly two or three built. Interior view shows access to trunk area and top grain leather upholstery.



cloth panel covering while the Beverly was more elegantly trimmed with a pleated or ribbed pattern on seats and side panels in either broadcloth or top grain leather. The Beverly also was available in both a fold-down centre armrest or a fixed centre armrest in both front and rear compartments. The fixed armrest version giving the effect of present-day bucket seats is the most desirable and rarest style in the closed versions.

Some of the 'firsts' which were inherent in the stunning configuration included a fully-disappearing top in the convertible models, the only American production automobile to utilise this excellent feature until just recent years. Concealed door hinges, not even found on the highly-touted 'streamlined' Chrysler Airflow model of 1934. The 'alligator' type of hood, and a completely hidden radiator core with no exposed shell or thinly masking grille. Elimination of running boards, allowing a 'stepdown' entrance to an interior uncluttered with humps in the flat floors of both compartments. Two rear tail lights with a centre-mounted and illuminated licence plate holder all faired into the rear surfaces and contours. Full diameter wheel covers and for the first time a faired

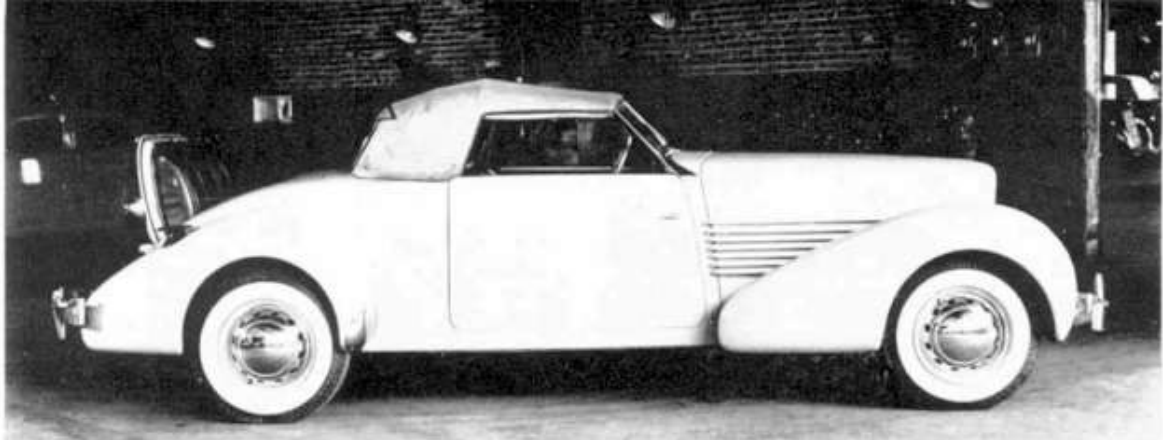
hinged covering for the gas tank opening. Interior appointments and colours either matching or complementing exterior schemes, with the trend-setting use of plastics of the tenite variety utilised in trim hardware. Pontoon-type fenders (wings) aiding in the most advanced aerodynamic configuration to date which also included the first designated 'fastback' so popular in recent years. The above mentioned disappearing headlights also faired into the leading edge surfaces of the front fenders, an extremely distinctive advance not duplicated by other stylists until more than 25 years later. One of the more striking features of the overall design was probably the most beautiful instrument panel yet devised for an automobile and not equalled before or since for its utility and good looks (see page 11).

The design of the 810 Cord is recognised by the Museum of Modern Art as one of the 10 finest examples of industrial styling of all time and is the only automobile to be so honoured. The numerous Cords remaining today are physical evidence of its universal aesthetic appeal. Its ageless beauty is as acceptable today as it was in 1936!

MODEL 810 AND 812 ENGINES

Since its inception the Cord has been as well known for its mechanical innovations as for its advanced configuration. Its successful application of the front-wheel-drive principle attracted as much notice as its distinctive looks. After the earlier attempt at f.w.d. made with the L29 Cord, the state of the art had advanced significantly in the few intervening years and the 810 Cord became the foremost American exponent of the front-drive system.

Powered with a specially designed V8 power plant engineered and built by Lycoming of Williamsport, Pennsylvania, the Cord's efficient power train was a compact, smooth and quiet running set-up which also deviated from the normal layouts of the then current competition. Among its features was a counter-balanced crankshaft with insert main bearings but



Only a very few of the early Model 810 convertible coupés were equipped with the rumble seat. Shown here is the number one of the series being made ready for shipment.

still retaining the poured-babbit rod bearings in common with most of the competitive makes. Valve operation was through an unusual set-up of rollers, instead of the usual pushrods following the cam and in turn activating a set of horizontally-positioned intake and exhaust ports. Domed aluminium pistons created a special combustion chamber which improved breathing and performance characteristics. The Cord FB engine was considered a reasonably efficient, smooth and quiet set-up with excellent oil and fuel economy.

The FC or supercharged engine introduced with the 812 models of 1937 was further improved to produce 170 b.h.p. at 3,500 r.p.m. A blower operating at six times crankshaft speed was designed by Schwitzer-Cummins and was driven by a ring gear fitted to a convenient shoulder at the centre bearing of the camshaft. A friction-driven roller-operated impeller was capable of slipping at high acceleration loads to ease the tremendous torque on the ring and pinion gears of the blower drive.

The supercharged version of the Cord incorporated the distinctive outside functional exhaust stacks which were a trademark of the Auburn-Cord-Duesenberg triumvirate. To this day they are the most

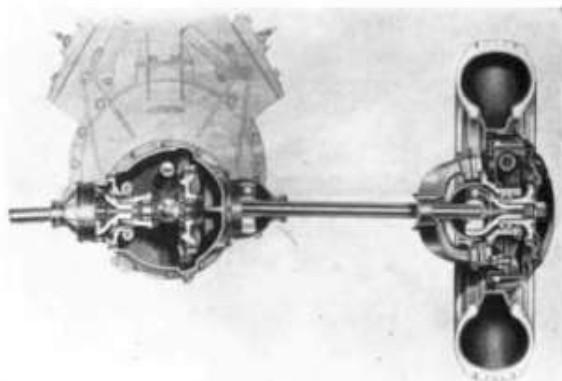
coveted of the series, with the four-place supercharged Phaeton one of the most sought-after of the classics. Improvements were made in the standard FB engine (non-supercharged) as well as the later supercharged models which increased boost pressure to develop an output of up to 195 b.h.p. at 4,200 r.p.m. with accessories. A highly-tuned example was capable of better than 200 b.h.p.—a fabulous rating for a production auto at that time. Ab Jenkins, the noted test driver, was quoted as estimating that the supercharged version was capable of 225 b.h.p., admittedly a slide-rule figure arrived at during the A.A.A. test runs on the Utah salt flats.

PERFORMANCE DETAILS

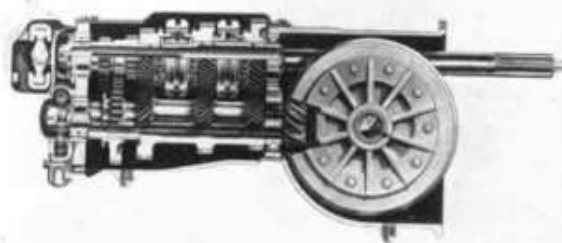
Despite the inability to shift through the gears rapidly due to the electro-vacuum action of the gear-changing mechanism, the Cord was capable of respectable, although by no means earth-shaking, acceleration figures in both the standard and supercharged models. The British *Autocar* tests, which are notably impartial, quoted (in seconds) the following figures for the supercharged sedan with the standard sedan faring somewhat less spectacularly in comparison.

An early Model 810 Sportsman as it comes off the line. The completely hidden folded top contributes immeasurably to the sleek, good looks of this beautiful convertible. Protective covering on chrome bumpers dulls some of the brightwork in these factory photos.





The front wheel drive layout is shown in this cut-away drawing. The constant velocity universals supplied power to the independently sprung front wheels suspended in a trailing arm yoke.



Cut-away drawing showing the electro-vacuum operated transmission driving the front end differential. Low and reverse are spur gears at left. Second, third and fourth synchromesh gears in that order to the right.

		Miles per hour		
		10-30	20-40	30-50
1st gear	(9.08: 1)	3.3	-	-
2nd gear	(5.85: 1)	4.9	4.6	4.6
3rd gear	(3.88: 1)	7.7	7.6	7.5
4th gear	(2.75: 1)	11.5	11.9	11.8

Other figures on performance from the *Autocar* tests are:

- *Mean maximum timed speed over $\frac{1}{2}$ mile run 98.90 m.p.h.
- *Best timed speed over $\frac{1}{2}$ mile run 102.27 m.p.h.

Shown at the Indianapolis Speedway, these Model 810 Cords were the Official Cars at the 1936 500-mile classic. Many of the Indy drivers selected the Cord as their personal car.



Speeds attainable on indirect gears were:
 1st: 23-34 m.p.h., 2nd: 47-60 m.p.h., 3rd: 77-88 m.p.h.
 From standing start through the gears to:
 30 m.p.h. 5.0 seconds
 50 m.p.h. 10.5 seconds
 60 m.p.h. 13.2 seconds
 70 m.p.h. 19.6 seconds

Figures above are averages of several runs in opposite directions for each test. A change in differential gear ratios late in 1936 from the original 43:10 to a 47:10 ring to pinion, resulted in increased road performance. The *Autocar* tests were made with the earlier gear ratios in the standard version.

By downshifting, for passing or extra bursts of speed on the open road, head-snapping acceleration was available at speeds even above 50 m.p.h. Fourth gear, essentially an overdrive, allowed pistons to virtually loaf at high speeds and the Cord was capable of cruising all day long at 80 or 85 m.p.h. without undue stress to the engine. Top speeds of over 110 m.p.h. with the supercharged models were not uncommon. Ab Jenkins claimed a top speed of 121 m.p.h. at 4,500 r.p.m. with a later model of the supercharged sedan. He also claimed he could have averaged 120 m.p.h. if a change to racing type tyres had been allowed on the stock sedan. Standard equipment tyres had a nasty habit of throwing their treads at sustained speeds and Jenkins was forced to throttle back after only short bursts of top speed. Braking was considered excellent by the standards of the day with larger than average brake drum surfaces incorporated in the fully hydraulic system. Hill climbing and cornering under power were comparable to European sports-cars with the stiff suspension and shock absorbers accentuating the inherent stability of the car under all driving conditions.

Additional mechanical design features of the Cord are its unique and carefully devised suspension and steering geometry. The trailing arm suspension of the front end was an entirely new concept which allowed ideal vertical travel of the front wheels resulting in

**It must be emphasised that these tests were made under less than favourable conditions on a banked race track which would have given reasonably accurate testing in the shorter run acceleration trials but could not have been entirely satisfactory for the top speed tests due to the unavailability of a sufficiently adequate straight highway at the time.*

superb handling characteristics at all speeds and under any conditions. Low unsprung weight due to the careful suspension layout contributed immeasurably to the already excellent handling, steering and ride qualities of the 810 Cord. Total unsprung weight was reduced almost 40% compared with a conventional rear drive car of the same weight class.

With all factors considered, the Model 810 Cord could compare favourably in most respects with any contemporary product of both American and European manufacturers. Performance was the key to the Cord design and no expense was spared to achieve that goal. The Cord was an expensive automobile, priced at about double the cost of a Cadillac and as much as 4 or 5 times the price of the contemporary Fords, Chevrolets and Plymouths.

THE CUSTOM SERIES

With the introduction of the supercharger option in the 1937 Model 812, an attempt was made to capture some of the luxury market as well, by the addition of the Custom Series. Two long (132 in.) wheelbase sedans were added to the line of four basic models. The lengthened and heightened bodies of these deluxe sedans was an attempt to increase leg and headroom and also included more luxurious interior features for the more sophisticated customer. The Custom Beverly was equipped with the regular



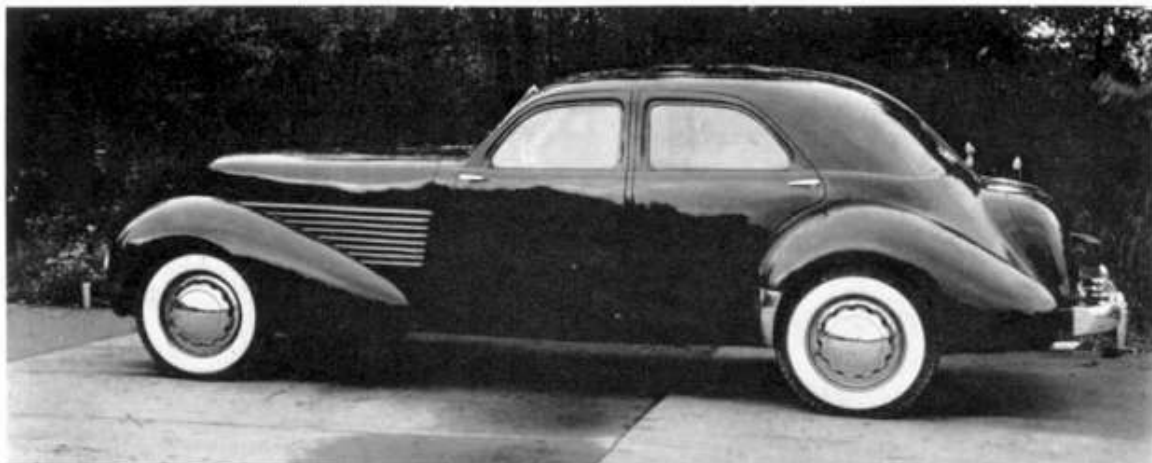
Ab Jenkins, noted test driver, with an 810 sedan in 1936 in front of the factory offices and showrooms in Auburn, Indiana.

pleated upholstery and fold-down centre arm rests in both front and rear compartments. An integral trunk replaced the fastback of the earlier models. The Custom Berline was offered for the chauffeur-driven trade and included a roll-down glass divider between front and rear seats. Extra rear compartment equipment in the form of built-in vanity, radio speakers, smoking accessories and telephone for communication between rear seat passengers and the driver. The latter two models are readily identified by the



First supercharged sedan. Note bolts around side screen not found on the production cars.

First Custom Berline: the 132" wheelbase version with chauffeur division. Note higher roof line, bulkier upper rear quarter and less fender cut-out in rear door allowing more leg room in rear compartment. Also eight louvres instead of the seven of the standard models.





Possibly a LeBaron design, this convertible sedan in a more contemporary style is a 1937 variation. Never before published, this photo is one of the many in this publication from a group of 80 recently resurrected original factory photo negatives found in the Connersville, Indiana assembly plant in 1966.



A Boston, Massachusetts, Distributor's display in 1937.

practiced eye by their more bulbous top and upper rear quarter sections, the wider rear doors and the 8 louvres of the grille as compared to the normal seven in the regular versions. This extra louvre was added to help retain the original design proportions in the enlarged chassis. These 132-inch wheelbase bodies unfortunately failed to capture the sleek good looks and cohesiveness of the original. Outwardly, these larger editions appeared to be precisely what they were—a cobbled up distortion of an almost perfectly

balanced original design configuration. However, they served a purpose and only a very few were included in the total production.

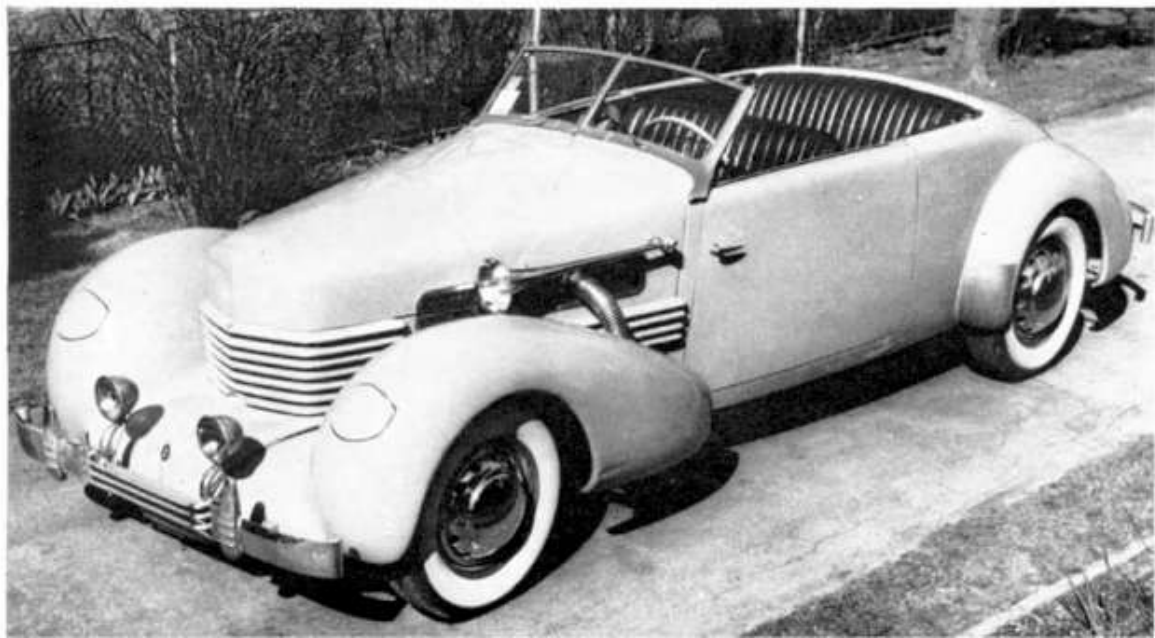
Only 2,320 of the combined 810 and 812 Cords were built over a period of a little less than two years of production. But the Cord lives on today! There are various estimates of the number still in existence ranging from 1,000 to 1,500 or more. Over 500 of these are listed as owned by members of the world-wide Auburn Cord Duesenberg Club.

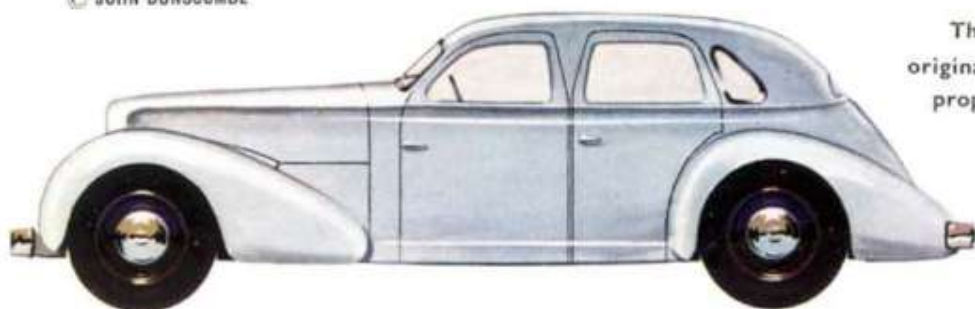
FLOREAT!

It is highly doubtful that any other American production car ever existed that can claim approximately 50 per cent of its total output still essentially serviceable more than 25 years after ceasing production—a claim which will be impossible to equal under modern day conditions and current quality of product, at any price!

The true test of a good design is gauged by its lasting appeal. The Cord has proved its universal attraction. After more than a quarter century, its perennial good looks will still turn the heads of young and old alike and, more than 25 years after being orphaned, its design and styling look as modern and refreshing as today's newest offerings of the automotive industry. To many of its dedicated devotees the Cord surpasses anything marketed since its untimely demise—for eye appeal, for performance and for all-round driving pleasure. A man's car, with the sporty good looks which make it stand out in any group of old or newer automobiles, the 810 and 812 Cords will be around for at least another 25 years if the past activity of its many admirers and present-day owners is any criterion for the future. One wonders if there has been an automobile of any make, before or since, which has had the Cord's impact and influence on the industry as a whole. The advent of this magnificent marque was the turning point in an industry which has since been copying most of its 'pioneering' features, one by one, over the years, and we believe there are still a few to be imitated before the so-called 'modern' designers have com-

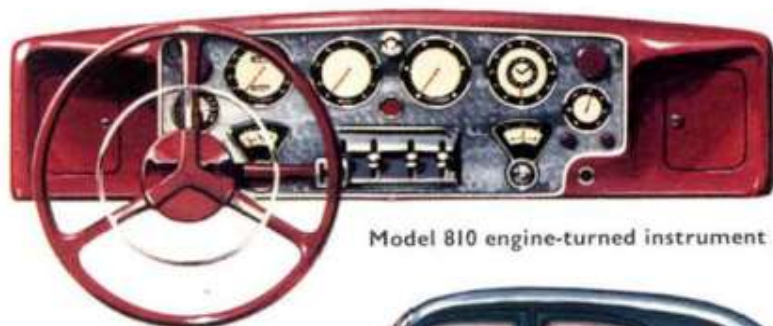
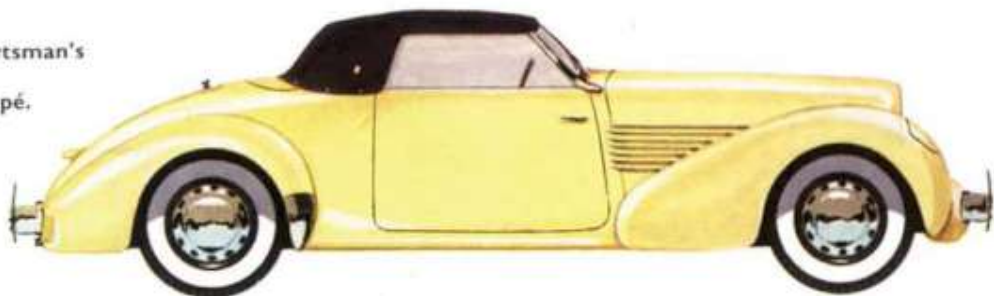
Model 812 Supercharged Convertible Phaeton Sedan, top down.





The prototype Cord was originally conceived, in 1935, as the proposed "Baby" Duesenberg.

1936 Model 810 Sportsman's
Convertible Coupé.



Model 810 engine-turned instrument panel.



1936 Model 810 5-passenger
Westchester Sedan.



1937 Model 812 Supercharged
long-wheelbase (132 in.)
Custom Beverly Sedan.





A 'mock-up' Sportsman, perhaps a prototype for a 1938 or 1939 model, shows 8 louvres in a downward and progressively forward protruding modification of hood (bonnet) styling. A simplified rounded and higher transmission cover replaces the 'wrap-around' configuration of the original housing.



Head-on view of a 'one-off' extra-long wheelbase, six-window limousine. Note added height of hood requiring lengthened outside exhaust stacks and ten louvres!

pletely incorporated the many trend-setting innovations first included in the Cord.

So impressive is its influence that a smaller (eighth-tenths of original size) version of the Cord was created in its image in 1964-1965 and is now being manufactured in limited numbers at a new plant in Tulsa, Oklahoma. As a tribute to its original designer, the

Replica: the 1966 Model 8/10 Cord Sportsman shown here with entrepreneur Glenn Pray, present owner of the remaining Auburn and Cord assets located in a newly-established facility in Tulsa, Oklahoma.



first of the 8/10 Cords was presented to Gordon Miller Buehrig who had a hand in its rebirth and who is happily motoring around southern California in his No.1 replica enjoying semi-retirement. A fitting tribute to probably the world's most recognised automotive stylist whose career has been the fountain-head of more of the most desirable classic automobiles than any other single stylist.

It remains to be seen if another lease of life for the Cord will perpetuate the world-famous marque for newer generations of enthusiasts. We sincerely hope so.

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All photographs reproduced in this Profile are from the Author's Collection.

SPECIFICATION: CORD MODELS 810 & 812

ENGINE

Type: 90° V8 Lycoming Aluminium L head, 3 main bearings. Aluminium pistons with 4 rings. Poured connecting rod bearings. Counter balanced crankshaft.

Bore and Stroke: 3½ in. × 3½ in.

Displacement: 288.6 cu. in. (4,729 c.c.)

Compression Ratio: 6.50 : 1 (1936), 6.32 : 1 (1937).

Rated Power: 125 b.h.p. at 3,500 r.p.m. 190 b.h.p. at 4,200 r.p.m. S/C.

Ignition: Autolite single breaker on standard models. Autolite dual breaker on S/C models.

Carburettor: 1 in. Duplex downdraft on standard models.

1½ in. Duplex downdraft on S/C models.

Crankcase Capacity: 7 Quarts.

Lubrication: Full pressure feed (40 lbs.) to main and rod bearings, camshaft, piston pins and rocker arms.

CHASSIS

Wheelbase: 125 in. Standard models. 132 in. Custom models.

Tread (Track): 56 in. Front. 61 in. Rear.

Height Overall: 60 in. Sedans (Saloons). 58 in. Convertibles.

Suspension: Front, independent trailing arm with semi-elliptic transverse leaf spring 34½ in. × 2½ in. Rear, longitudinal semi-elliptic 54½ in. × 2 in. rubber bushing shackles.

Drive: Direct through splined universal shafts to front wheels.

Transmission: 4 forward speeds, one reverse. Ratios engine to wheels: Reverse, 10.89 : 1, First 9.08 : 1, second 5.85 : 1, Third 3.88 : 1, Fourth 2.75 : 1. Electro-Vacuum finger tip control.

Differential: 43 : 10 (1936). 47 : 10 (1937).

Steering: 18.2 : 1 ratio Gemmer centre point, 20½ ft. turn radius.

Clutch: Semi-automatic, single dry plate 10 in. dia., ball bearing clutch release.

Brakes: 4 wheel hydraulic, hand brake operates on rear wheels.

Tyres: 6.50 × 16, 6 ply.

Gasoline Tank Capacity: 20 Gallons (U.S.).

Coolant Capacity: 28 Quarts (U.S.).

Battery: 135 Ampere hour capacity 19 plate Heavy Duty.

Weight: Sedan 3,650 pounds.