

DRAFT

HANDBUILT CORDS

By Bill Bicknell

HISTORY:

The evolution of the 810/812 Cord can be described in various stages from conception, to prototype, to handbuilt cars, and then finally to production. This article will cover handbuilt cars in detail while giving additional information on other stages as appropriate. Most of the information here has been told at one time or other in the ACD newsletters over the past 50+ years but in small segments. A goal of this article was to cover as much as possible about the handbuilt cars in one location.

The 810/812 Cord, as we know it today, actually started life in late 1933 as the “Baby Duesenberg” project. This was a plan for a lower cost Duesenberg using an Auburn chassis and drive train with an advanced, aerodynamic body design by Gordon Buehrig. A prototype was built in February of 1934. The few available photographs of this car leave no question that this was the inspiration for the 810 Cord and that its heritage came from the Duesenberg project but with a change to front-wheel drive.

In 1935, five prototype front-wheel drive Cords were built with one being driven across country to determine good and bad features and designs. The cross country car made it to the West coast and back as far as Dixon, Illinois before encountering transmission trouble. A replacement transmission was sent, the car was repaired on the spot, and the trip was finished. The features unique to the prototype cars are covered later in this article.

The model 810 Cord was introduced at the New York automobile show in November 1935 and was displayed along with Auburns and Duesenbergs. A qualification to enter the show was that the car had to be a “production” car, not just a one-off prototype. The specific requirement to be a “production” car was the building of at least 100 cars. The Auburn organization pushed itself to its limits to meet the deadline and this qualification. The time from project approval to the start of the New York Auto Show was three months and 26 days. As this was not enough time to develop production tooling, the result was a series of what is referred to as “Handbuilt Cords”. While the handbuilt Cords look much like the production cars, interchangeability of body parts is almost nonexistent. This article strives to point out differences in both the noticeable appearance items as well as some of the more subtle features.

Over the years, many interesting stories of handbuilt Cords have been told in various books and publications. A list of most items that are different was included in an article by Ted Ruhling, owner of handbuilt Cord #44, in the No. 6 newsletter of 1995, the year the Handbuilt Cord was the featured car at the Auburn meet. Other information came from Josh Malks, Ron Irwin, Paul Bryant, and Bob Neer who supplied many parts for the photographs.

In a 1968 interview with Ed Rudd, a former Central Manufacturing employee during the early days of building Cords, he tells of a plan to build 80 Cord sedan bodies at the Connersville plant and another 20 convertible bodies at the Auburn plant, to meet the 100-car production requirement. Some of Ed’s

comments in the Feb 1968 ACD newsletter illustrate how the factory was being set up for building the Cords in August of 1935. According to Ed, none of the show cars had transmissions but supplier records show that transmissions were shipped in time. The show cars were returned to Connersville and disassembled for their usable parts. Most of the bodies were intentionally scrapped with some of the salvaged parts being used on production cars. The convertibles were intentionally scrapped because they were so hurriedly put together that body panel fit was poor and structural integrity was in question. The sedan bodies were disassembled at the factory and stored behind the building. Throughout the period of manufacture of Cords one of these would occasionally be pulled up and finished and sold to the employees. This explains why there are not only 810, but 812 handbuilt cars. A list at the end of this article shows information known about use, ownership, and the disposition of several handbuilt Cords. Unfortunately some, as shown, were known to have been scrapped.

An interesting part of this story is that in 1936 there was some flooding and erosion in the Whitewater River in Connersville, Indiana where, as mentioned earlier, the Cords were manufactured. As part of a WPA project, work was being done to restore the river bank and "fill" was needed. Stripped down handbuilt Cord body shells were taken to the river bank and filled with broken concrete blocks and dirt – a terrible fate for cars we would treasure today. A rumble seat convertible retrieved from the river bank is shown in the below photo. (photo) For additional information, an article by Sid Ayers in the 1982, No. 6 ACD newsletter covers a complete description of the salvage of this handbuilt convertible body.

DIFFERENT PARTS:

Anyone who has worked on a Cord has probably noticed that there appears to be a mixture of "early" and "late" parts used in the assembly of their car. This may, in part, be due to taking parts from one car and using them on another for restoration. It may also be due to later parts being mixed together in the bins with early parts and the "mixture" coming from the factory. It doesn't appear that there was a first-in-first-out inventory management system. Auburn ordered parts in quantities necessary to support the first 100 cars, which more or less matches the 100 handbuilt cars. However, there were many running engineering changes down to minute details like changing bolts on the oil pump cover. This article is intended to address VISIBLE differences in the handbuilt cars, not running engineering changes of tolerances, materials, or internal engine parts, etc.

There are over 50 differences between handbuilt Cords and production Cords. Differences will be listed here with discussion and photos on many items. This author has studied handbuilt Cords for many years and is the owner of Cord #1017A, the 17th Cord built and likely one used as one of the 1935 show cars.

There is much speculation about the actual number of handbuilt cars built and about what happened to them. Available production figures indicate that in October and November 1935 that 84 handbuilt Cords were produced: 60 Westchesters, 1 Beverly, 12 Phaetons, and 11 Cabriolets. While this shows good intent on Auburn's part, there were actually only about 26 cars finished before the November 2nd Auto Show. Central Manufacturing production numbers for October, November and December 1935 are shown in the inset. (inset)

There is some discrepancy in information about whether the show cars had transmissions or working transmissions. Still, they made a stunning appearance, with stories about people standing on the

bumpers of competitor's cars in adjacent booths just to get a look at the Cords over the heads of people crowded around the cars.

Probably the most well-known of all handbuilt Cords is the Coppertone Cord restored by Paul Bryant (#1021). Today this car is displayed in the ACD Museum. Paul acquired this car in derelict condition and with no front fenders from Lippes salvage yard in North Carolina. When Paul acquired the car, the previous owner, said the fenders on the car had inboard headlights when it came in. While the color of the car is perhaps its best-known feature, and by serial number this was a handbuilt car, Paul chose to restore it in the configuration of the even earlier prototypes. As such, the car includes some lesser known, but key features such as inboard headlights, which Paul reconstructed, grooved bumpers with the Auburn-type outer ends, and hubcaps with no holes. An even more subtle feature is the windshield height. The original design, and prototypes, had a low windshield that restricted vision during the cross-country shake down trip. So the windshield height, therefore, was raised for production, including the handbuilt cars. This is a very special car among surviving handbuilt Cords.

A check of engine numbers shows non-consecutive numbering. After the shows, the cars were returned to the factory and the engines were removed and used in early production cars. Bodies were stored and later brought back, finished with production parts, and sold to company employees. This would explain the engine number mismatch. Also, an item in the engineering change notebook dated 12/12/36 indicates that show car engines were being installed in production cars very late in 1936 for cars sold in 1937. There is a list of 7 show car when Paul acquired it, the previous owner, said the fenders on the car had inboard headlights when it came to the yard. engines used at this point of production.

Many items listed here were individually covered in the ACD newsletters in the 1960's where each month a technical oddity called "Cord Curios" was shown, generally submitted with photos by Russ Gerrits or Ron Irwin. (Note: The Cord Curios items included some later production parts that were interesting but not used on handbuilt Cords.)

As mentioned in the beginning of this article, there were to be 100 cars produced to qualify for the auto shows. It also seems that parts for these early cars were ordered in batches to support 100 vehicles. Engines, transmissions, and other parts apparently were switched around, and some of these parts from the first batch ended up on production cars. Cord made running changes throughout the two years of production. It is commonly thought that there were a least two versions of every part. This author believes that to be the case for most parts. However, the discussion here is limited to the handbuilt cars including some items that may have been carried over into the early days of "production".

SPECIFIC FEATURES:

The features unique to the handbuilt cars covered in this article can be divided into five categories as follows:

- Body – 17 items
- Interior – 7 items
- Engine – 13 items
- Transmission – 5 items

Of the 42 (47 including Prototype features) total items identified here, many are discussed below with accompanying photographs and all are listed at the end of the article:

BODY: Externally, the handbuilt and production cars look so much alike it is difficult to tell one from the other without careful inspection. Probably the easiest way to tell from a distance is to look at the stone guards on the rear fenders. It has been believed that the handbuilt stone guards were all flat across the top, not notched as in production cars. However, Ed Rudd, a former employee of Central Manufacturing, states in an interview that the notch was included from the beginning, but that some were cut off when the guards did not match the fenders. Some show cars, therefore, may have had notched stone guards but all existing handbuilt cars have flat-topped stone guards (photo).

Other body features that are less noticeable are louvers which were formed without the inner edge turned up and were usually bolted or riveted, versus welded to the support brackets (photo). A closer look under the hood and under the car reveals that the firewall is different in that the ribs were hammered out by hand and have sharp 90-degree corners compared to production-stamped ribs which have smooth rounded corners (photo). The radiator support rods on the handbuilts are bent differently and go straight into the firewall with a nut on each side. Production support rods have a special stamped hole, at an angle, with a special nut for the support rod (photo).

Opening the trunk on a handbuilt Cord reveals the spare tire in the center of the trunk, not located to the right side as in production cars. The rear trunk wooden shelf goes all the way across the trunk. Also, barely visible from the trunk opening, the handbuilt hinges are fabricated from flat steel vs. cast production hinges (photo).

INTERIOR: A look inside the car reveals several interesting items. First, the shift lever circle is smooth and the shank tapered, compared to the grooved and step-diameter production lever (photo). The lower corners of the instrument panel are curved so that the cut-out corner is much smaller than in production cars (photo).

The dash control levers are different, as well as the housing in which they mount. On production cars, the words “choke, lights”, etc. are cast into the lever housing. On the handbuilts, these labels are individual brass strips riveted to the lever housing (photo). Also, the letters on the headlight crank labels are indented vs. the raised letters of the production labels (photo).

Some less noticeable items are: The garnish moldings around the door windows are cast aluminum vs. stamped steel used in production (photo). Also, there is only one cowl vent on the left, and the knob under the dash is a large black plastic knob. The right side “vent” is actually where the water and oil fill tubes are located. This feature was carried over into early production.

ENGINE: A look under the hood shows several differences on the engine. Perhaps the most obvious change is the cast aluminum oil pan with ribs vs. the stamped steel production pan (photo). The carburetor used on the handbuilts was an EE-1 that had a 3-bolt mounting base. Likewise, the intake manifolds had the 3-bolt carburetor pattern vs. the 4-bolt design used with the production EE-15 carburetor (photo). Exhaust manifolds were different too. The manifold part numbers were cast into the top of the handbuilt manifolds with large numbers (photo). The production manifolds were cast with smaller numbers on the bottom side. The left exhaust manifold on production engines has a raised boss

that is tapped for the stud that holds the air cleaner support bracket. The handbuilt manifolds do not have this feature, as the air cleaner was the bowl type such as that used on 1932 Fords and, therefore, didn't need the support bracket required by the horizontal can-type air cleaner used on production models.

Another noticeable item can be found on the fan. The production fan blades are tapered from the hub to the end, whereas, handbuilt blades are the same width the entire length (photo).

TRANSMISSION: The transmission items are more difficult to see as they are usually hidden by the transmission cover. Early transmissions did not have an interlock mechanism and no provision even existed for it in the case casting (photo). Also, in the early cases, the reverse idler shaft was held in place by an external bolt and the shift cylinder bracket is straight, not angled (photo).

SUMMARY: As can be seen from highlighting just the above items, handbuilt Cords are distinctive and have many interesting features not found on production Cords. While, from a slight distance, they look nearly identical to production Cords, a closer look shows how they were assembled before the Connersville production line was set up.

Below the various features are divided into PROTOTYPE, HANDBUILT, and, EARLY PRODUCTION.

FEATURES UNIQUE TO THE FIVE PROTOTYPE CORDS:

1. Headlights - Inboard
2. Wheel covers - without holes (photo)
3. Windshield – lower than handbuilts or production cars
4. Bumpers - grooved and attached at outer ends like Auburn
5. Steering wheel – banjo type (a few handbuilts cars have these)

FEATURES CHARACTERISTIC OF THE 100 HANDBUILT CORDS (Prototypes may have had these features also):

BODY (17 items):

1. **Louvers – no vertical ridge, louvers bolted vs. welded**
2. Fenders – slightly different shape and narrower at transmission
3. Transmission cover – narrower with more vertical area and sharper bends
4. **Stone shield – flat top, no notch – (photo)**
5. Hood welding – hood made from several pieces and welded
6. Inner fenders – 2-piece – see Cord Curios #32 (R. Gerrits, 10/66)
7. **Firewall & radiator rods – ribs have sharp corners, rods go straight into firewall (photo)**
8. Outside door handles - have less detail
9. **Doors, deck lid fit to body, non-interchangeable – due to hand fabrication**
10. Floor pan stiffeners – triangular vs. “top hat” style
11. Central Mfg. plate - under seat
12. **Spare tire - in center of trunk; wood shelf all the way across**
13. Gas tank – smooth surface vs. ribbed

14. Body wider - than production body
- 15. Trunk hinges - fabricated vs. cast – (photo)**
16. Reveal around door windows and rear windows - not as deep as production stamping
17. Battery cover – taller than production style

INTERIOR (7 items):

- 1. Dash panel - cutout at bottom of instruments is smaller (photo)**
- 2. Dash knob labels – brass with rivets (photo)**
- 3. Cowl vent knob - large black plastic (photo)**
- 4. Headlight crank plates – embossed vs. raised letters**
5. Glove box knobs - longer than production knobs
- 6. Door window garnish moldings – cast aluminum vs. stamped steel (photo)**
- 7. Shift lever – tapered vs. step diameter (photo)**

ENGINE (13 items):

1. Highly detailed, chrome, etc.
- 2. Intake manifold; 3-bolt type for EE-1 carb vs. 4-bolt for EE-15 carb (photo)**
- 3. Exhaust manifolds – numbers cast on top vs. bottom, left has no stud for air cleaner (photo)**
- 4. Aluminum oil pan with fins vs. stamped metal (photo)**
5. Engine block casting has extra boss by oil pressure fitting
6. Early thermostat had smaller neck
7. Chrome radiator tubes welded at angle
8. Early radiator cap same as 8-105 Auburn
9. Startix did not have flange, chromed
10. Generator Autolite GAR 4603 same as 1934-336 Auburn
11. Fuel pump - small with metal cover vs. later glass bowl type
12. Spark tubes had flared holes for wires
- 13. Fan blades – straight vs. tapered**

TRANSMISSION (5 items):

- 1. No interlock (photo)**
2. Grease pump – screw type
3. Side shift shaft – used rubber dust bellows
- 4. Reverse idler shaft - held in place by external bolt (photo)**
5. Shift cylinder mounting bracket - straight vs. angled

FEATURES COMMONLY ASSOCIATED WITH HANDBUILT CORDS, BUT CARRIED OVER INTO 1936 PRODUCTION:

- 1. Right cowl “vent” – oil & water fill (photo)**
2. Generator drive pulley - no holes
3. Rear axle/shocks - had sway bar
4. Stub frames - not have as many braces
5. Brake shoes - different lining areas; some wheel cylinders straight through vs. step-bore
6. Wheels - thin vs. heavy duty

7. Clutch and brake rods - supported with rubber guides vs. brass sleeves
8. Inner U-joints - had clips holding them into differential (Rezeppa joints)
9. Trailing arms – holes for spring safety hangers

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