The Evolution Of THE MODEL A FORD FRAME ASSEMBLY

A-5005-A, B, C and D According To Ford Engineering Releases

By Steve Plucker, Touchet, Washington

The following is an evolutionary study of the 1928-1931 Model A Ford Frame Assembly A-5005-A, B, C and D, according to the Ford Releases. The main reason for the "A, B and C" changes all related to a major change in the Front Cross Member A-5020, except for "D." This study contains most of the major changes that occurred, which I tried to confirm with actual frame information where possible. However some features were not confirmed as noted.

If reading the Frame Assembly releases correctly, every time Ford made a series of changes or updates to a part or a series of parts over a period of time, which may have been a week to a month or two, they would then bring the Frame Assembly "up to date," incorporating the new version into production. During the four years of production, there were at least 19 times the frame assembly was "brought up to date" through January 20, 1930. There were other times after this that the frame was "brought up to date," however the frame assembly information does not indicate this but this data is there to justify it.

To fully understand the evolution of the Model A frame, one must first have an idea of how the Ford engineering department worked their "release" program, their terminology and their thought process.

If an idea was to improve a specific part (as in an assembly) or in this case the frame assembly, which is a major assembly of plus or minus 53 parts in itself, not including the rivets, the Ford engineers assigned a "release" number for that change within the total assembly.

No matter if it was just one part within the total assembly or a combination of parts within the total assembly, the major assembly was assigned a release number, and so did the specific part or parts that were being changed. In either case, both, the individual parts and the full assembly got the same release number.

For instance, if a change was made in the size of rivet holes in four specific parts of the frame assembly, the frame assembly itself, A-5005-A, B, C or D, would be assigned a release number. Those four parts that were also affected by the change in rivet hole size, and only those four parts, would also get the same release number assigned to those specific parts.

For example, on December 7, 1927, Release Number 5555 indicated that the frame side members were to have all the rivet holes changed from 17/64-inch to 21/64-inch diameter. In conjunction with this, all the related parts that were going to be attached to the frame side members also indicated that their rivet holes were to be changed to accomplish the assembly with the same release number. Thus Frame Assembly A-5005-B was "brought up to date with changes in parts."

One must remember that it took some time to tool up and get these changes going in the assembly process after the Ford engineers were done. Since Ford used whatever "old" style parts were on hand before the "new" parts were implemented, the newer parts soon came into the production line process weeks and in some cases months after the Engineering Release date. The dates mentioned in this study represent the "release" dates for which the new change in the part or parts were sent to the production plant and are not to be confused with actual "assembly" dates unless otherwise noted. For a more precise view of actual "assembly" dates, please refer to the MARC/MAFCA Restoration Guidelines and Judging Standards*, available through the Model A Restorers Club, Model A Ford Club of America and/or many Model A Ford parts houses.

Work on the "new" Model A Ford commenced and plans for the new style Frame Assembly A-5005-A was finally released on June 3, 1927, with Release Number 403. Between this date and up to October 28, 1927, when production started at the

Rouge Plant in Detroit, Michigan, many experimental frame and chassis were developed by the Ford Engineering Department. Some of these experimental frames and other related parts might have found their way into some of the really early production vehicles such as frames with straight frame rails*. Whatever the case, a new number and design, Frame Assembly A-5005-B, was also in the "process" of being designed with Release Number 3574.

FRAME ASSEMBLY A-5005-A

Frame Assembly A-5005-A had what is called a 3-piece front cross member (Fig. 1). It consisted of parts A-5023 and A-5024, which were referred to as the Front Cross Member To Side Member Bracket. R. H. and L. H and were riveted to the front corners of the cross member. These were specified on October 27, 1927, Release Number 3574 as "New number, new part, 1 req. right hand and left hand A chassis 1928." It also indicated that this three-piece front cross member assembly was to be used on the first 200 cars only. The middle portion of the 3-piece front cross member was referred to as the Frame Front Cross Member, A-5020. The "middle" part had two raised lugs on either side of center of the cross member, that held the Starting Crank Bearing, A-5461, (Style 1) in place, thus keeping it from shifting from side to side. Holes for "locating" the Starting Crank Bearing were later added to the cross member in January, 1928.

But was it the "first" 200 cars that the three-piece front cross member was specifically used on? According to the MARC/MAFCA Restoration Guidelines





and Judging Standards*, it is thought that this number was more like up to engine number A1200. This can be attested by engine/frame number A1031, owned by Mr. Steve Ciccalone, which was stamped on December 1, 1927, and sent to final assembly on December 3, 1927, and was the 1,016 vehicle out of the Rouge Plant. This has the three-piece front cross member, not to mention the 140 plus other engines and frames that were sent to other assembly plants.

Some other features that were noted "added" to Frame Assembly, A-5005-A, on October 28, 1927, were holes for the rear shock absorber and front bumpers. There may have been on these very early chassis, not one, but two Equalizer Operating Shaft Springs, A-2492, as it specified on February 15, 1928, in the Indianapolis Ford Service Letter, "On some of the old cars you will find two (2) A-2492, Equalizer Operating Shaft Springs, to be removed." Just what this statement meant is not readily known nor just how the second spring, if it indeed was there, was installed.

On November 2, the number of holes for attaching the (rear) bumper (bracket) changed from 2 to 4 on the Frame Rear Cross Member, A-5030 (not confirmed).

On November 4, Release Number 4315, indicated that a 25/64-inch hole was added for the retracting spring stud to the left frame side member, A-5016. Could this mean that the very early production frames had a different set-up for the spring attachment? Could this have been what the Indianapolis Ford Service Letter of February 15, 1928, (above) was referring to?

The Rear Engine Support Brackets (Fig. 2), A-5090-A, were originally riveted (Fig. 3) to the frame with four 3/16-inch rivets*. These brackets can be seen in the February, 1928 Ford Service Bulletin, Fig. 449, page 222 (Fig. 4). Some brackets







may have been bolted with 1/2 inch bolts and castle nuts and appeared on the first 1000 vehicles*.

A new style Rear Engine Support Bracket, A-5090-B, and related parts were adopted on November 12, 1927. On November 15, 1927, Release Number 4762, all related parts went from four to three holes for attachment to the frame side members and remained as such throughout production. This bracket was designed to use either on the right or left side of the frame as a total of six holes were added to the flange which attached to the frame but only three were used per side. Some very early brackets may not have had the rectangular holes stamped in them. The Frame to Engine Rear Support Plate, A-5095-A1, was a forging as were all of the other "attachments" on the frame such as Hood Shelf Support Brackets, Running Board Brackets and Front Body Brackets.

On November 19, 1927, all changes were "brought up to date with changes in the side members."

This frame also possessed two holes to bolt the muffler bracket in the right rear flange of the Center Cross Member. This assembly consisted of two parts – the Muffler Bracket Foot A-5246, that was attached to the cross member and Muffler Bracket Collar A-5245, that was attached to the Muffler Bracket Foot and the middle of the tapered muffler. However, on November 21, 1927, it was decided by the engineering department that a new and less complicated bracket be brought into production so the holes and bracket were eliminated by the end of December, 1927*. The new Muffler Outlet Pipe Bracket A-5256 was installed on the lower flange of the right frame rail thereafter.

On November 26, Release Number 5220, the Front Brake Rod Spring Bracket A-2504 was to be added to the frame, which was "brought up to date" and was phased into production by vehicle A2500* about mid-December, 1927. This bracket was seen on Tudor Sedan, A2157, owned by Mr. Fred Gooding of Wilder, Idaho, which was stamped on December 14, 1927 and was sent to Kearny, New Jersey that opened December 12, 1927, for assembly. It was the 20th car out of the Kearny Assembly Plant (KY20) This bracket was a forging.

FRAME ASSEMBLY A-5005-B

As changes were made and brought into production on Frame Assembly A-5005-A, the Ford Engineers were hard at work trying to improve on a new design. This frame assembly was referred to as Frame Assembly A-5005-B and was brought forth on December 7, 1927, with Release Number 5555. There were four styles of this frame relative to the Frame Front Cross Member. Style 1 started in mid-December when the three-piece Front Cross Member was changed to a one-piece solid front motor mount type A-5020-A and continued to November, 1928 when once again the Front Cross Member was changed to style 2. This was implemented by the engineering department on October 11, 1928, with Release Number 10580 when it was stipulated that the rear flange be removed "thus removing the engine support holes." However the cross member still retained the reinforcing ribs for just a short time. Style 3 frame had the reinforcing ribs removed from the Front Cross Member in November, 1928. All three styles of Front Cross Members had the radiator mounting pad "below" the upper top surface of the Frame Side Members by about 1/8 inch. Style 4 frame had the radiator mounting pad "flush" with the upper top surface of the Frame Side Members.

When Frame Assembly A-5005-B (Style 1) was "brought up to date with changes in parts" on December 7, 1927, Release Number 5555, it consisted of the new style Frame Front Cross Member A-5020-A



(Fig. 5) and Frame Center Cross Member, A-5025, in that the width of the lugs and squared holes in the rear side changed from 1 inch to 1-1/4 inches, thus changing the distance between the top of the cross member and the top of the lugs from 2 inches to 1-3/4 inches. The other major change was that all the holes for riveting the parts to the frame were changed from 17/64 inch.

By January 5, 1928, Release Number 6079, Ford started to revert to the original rivet size of 17/64-inch diameter on certain select parts, including the Front Cross Member, which also "changed location of six rivet holes in the top." In conjunction with this release, two non-symmetrical holes were added to the front cross member (see Fig. 5) for locating the Starting Crank Bearing, A-5461, which led to a new bearing, (Style 2), with two 1/4-inch bosses or lugs on the bottom of the part later in the month. The first Starting Crank Bearing (Style 1) had no lugs on the bottom of the part. It is not known just how far into early 1928 that the Front Cross Member with the two "lugs" that were on the cross member to prevent the Starting Crank Bearing (Style 1) from moving right or left lasted. However, sometime after the "lugs" were deleted on the front cross member, two "domed" bosses were stamped into the cross member in place of the "lugs" and were removed sometime in mid 1928. The frame assembly was thus "brought up to date with changes in parts."

January also saw changes in the rectangular holes in the Rear Engine Support Bracket (**Fig. 6**). On some of the very early brackets, these holes did not exist as viewed on Tudor A2157. Whether it was



an error in the stamping process or not is not known. However when they were added, the holes were very close to the Flywheel Housing attachment. With the January 13, 1928, Release Number 6526, it indicated that the two rectangular holes were moved out 1/4 inch, changing the distance between the holes and the inside of the support from 1/4 to 1/2 inch. Also the Brake Retracting Spring Stud was to be removed from the left Frame Side Member because of a change to the new style Hand Brake Lever Retracting Spring, A-2744, in place of the Equalizer Operating Shaft Retracting Spring, A-2492, as was related in the February 15, 1928 Indianapolis Ford Service Letter due to "the new style brake rod support." Thus, on January 25, 1928, the frame assembly was once again "brought up to date with changes in the side members."



On February 21, 1928, the Hood Shelf Support Bracket A-5100 went from three holes (Fig. 7) to two holes (Fig. 8) on the top flange of the bracket and the Center Cross Member rivet holes reverted back to 17/64 inch. Bolt holes along with a grease zerk hole started to show up on the Frame Side Members right and left for the new style Emergency Brake Cross Shaft A-2828. The change over to the separate emergency brake system began as early as February, 1928 in some plants, but may have been as late as March, 1928 as indicated by the addition of the holes in the March 20 Release Number 7760. This was followed by the removal of the holes for the Brake Retracting Spring A-2492 on the back side and the removal of the holes for the Dual High Control Bracket on the front side of the Center Cross Member.

On March 1, 1928, the holes for the hand and foot brake rods were also increased from 1 inch to 1-1/8-inch diameter. March also saw a change in the location of the "squeeze grip" Emergency Hand Brake Lever Assembly from the left side of the chassis to going directly in front of the gear shift. With this came a change in the front face of the Center Cross Member with the addition of new holes for the Emergency Brake Lever to Cross Shaft Rods. On March 20, 1928, Release Number 7760, saw a change in size of the rivet holes for the Front Cross Member, Hood Shelf Support Bracket, Front Brake Rod Spring Bracket, and Rear Cross Member revert back to 17/64 inch and the frame assembly was "Brought up to date with changes in parts."

According to the April 10, 1928, Release Number 8164, and the September 6, 1928 Fargo Ford Service Letter, the punched in stop brackets on the back side of the Center Cross Member, were discontinued when the change to the solid brake rods were made as they were no longer needed, or so they thought. Also a one-inch diameter hole was added to the back side of the Center Cross Member for the clearing of the lever to cross shaft rod link. Once again, the frame assembly was "brought up to date with changes in the side members and the center cross member." By the end of April the angle of the Front Brake Rod Spring Bracket surface and face for the spring was also changed from 90 degrees to 85 degrees.

The major change in May, 1928 was the change in location of the hole for attaching the Battery to Ground Connector Assembly A-14301 to the frame. From start of production to May, 1928, vehicles had the negative battery post on the left front, making the positive post on the right rear of the battery. The hole in the Center Cross Member for the ground strap was directly behind this post. When the battery terminals were changed to the opposite configuration, the negative terminal went to the right front and the positive terminal went to the left rear, thus a new hole was drilled in the front of the Center Cross Member for the ground strap.

By June, 1928, the changeover to the separate emergency brake system and the relocation of the Emergency Hand Brake Lever Assembly was complete*. This was featured in the July, 1928 Ford Service Bulletin. The hole for the left hand Emergency Brake Lever Bracket was removed from the left Frame Side Member on July 27, 1928, and the frame assembly was also "brought up to date."

On August 27, 1928, Release Number 10070, Ford reverted back to the punched in stop brackets, which were located on the back side of the Center Cross Member. This feature continued into December, 1928. Those Center Cross Members. which do not have the punched in stops from April to September, 1928, may very well have added Brake Back Stop A-2476 to the back of these cross members. It was discovered that it was possible that without the punched in brake stops, the brake equalizer could come out of the brake operating shaft, thus the addition of the Brake Back Stop as related in the September 6, 1928, Fargo Ford Service Letter. On the other hand, there are Center Cross Members without this feature where the owner or the local service department didn't put the part on the car. This was a "service" addition and was not done in the factory or on the assembly line that I am aware of. Thus the frame assembly was "brought up to date." A new hole for the "new" design Battery Support was also added to the frame Center Cross Member. This was reported in the October, 1928 Ford Service Bulletin.



By August 30, 1928, Release Number 10103, the Front Brake Rod Spring Bracket, the Frame to Body Bracket -Front and the Hood Shelf Support Bracket were all changed from a forging to a stamping. September 20, 1928, the Frame to Engine Rear Support Plate, A-5095-A1, was changed from a forging to a casting or Malleable Iron Design (Fig. 9). It is thought that the "forged" plates have "raised" part numbers on the outer face of the plate where the "castings" have a "stamped" part number on the back of the plate. By September 21, 1928, Release Number 10155, the pockets and the holes for the brake equalizer, holes for the hand brake rod and the holes and punched in stops for the brake equalizer beam stop



were to be removed from the Center Cross Member. This feature began when the new one-piece Service Brake Cross Shaft Assembly A-2485-D was introduced in November, 1928. On September 28, 1928, Release Number 10423, the Front and Rear Running Board Brackets were to be changed from a forging to pressed steel. Do not be surprised to find a combination of forged and pressed steel brackets on these frames. By March 1929, most, if not all, brackets were of the stamped steel design*.

In October, the Ford engineers were working on revising Frame Assembly, A-5005-B (Style 1). By October 11, 1928, Release Number 10580, Frame Assembly, A-5005-B (Style 2), was "brought up to date with changes necessitated by the new front engine support" (Fig. 10). What Ford did was revise the Front Cross Member so that the back of the rear flange was to be cut off 1-3/4 inches, thus removing the engine support holes which led to a new part, the Engine Front Support Assembly, A-6030-A. The size of the hole in the bottom of the cross member went from 1/2 inch to 3/4 inch diameter, which was used to accept the A-6034 brass bushing for the new engine support and the two holes formerly used with the engine pans were removed. The Starting Crank Bearing was also "redesigned" (Style 3), but retained the non-symmetrical lugs. The new cross member and related parts were brought forth in the November, 1928 Ford Service Bulletin thus Frame Assembly, A-5005-B (Style 2), began.

On October 26, 1928, Release Number 10580 Supplement, saw yet another change in the Front Cross Member (Fig. **11**). To simplify the dies, the reinforcing ribs were removed from the rear flange and the radius for the notch on top of the flange on the rear side was changed from 1-1/8 to 1-1/4-inch radius. Thus the beginning of Frame Assembly, A-5005-B (Style 3).



By November, 1928, the one-piece Service Brake Cross Shaft Assembly, A-2485-D, was introduced and the need for the square holes on the top side of the Center Cross Member for the two piece brake cross shaft and equalizer beam and the square punched in stop brackets on the back of the cross member were no longer needed and were removed thus the frame assembly was "brought up to date with changes in parts."

On December 12, 1928, the hole in the bottom of the Front Cross Member, A-5020-A, for the motor support, was changed from 3/4 inch to 7/8 inch thus eliminating the brass bushing. The hole in the front face of the Center Cross Member for the brake rod was changed from a 1-1/2-inch hole to the shape of a blank plate for the frame front bumper plates (not confirmed).

Ford was ahead of its time during December, 1928. According to Release Number 11397 for December 19, 1928, the Ford engineers were already looking at a "new" style Emergency Brake Cross Shaft. The release indicated "Removed hole for Emergency Brake Cross Shaft Lubricator Fitting and added hole and pocket for cross shaft bushing." The "hole and pocket" in the Frame Side Members for this feature did not appear in production with the "new" shaft until April, 1930.

By January 26, 1929, Release Number 11800, Ford changed the distance between the hole for the muffler bracket and the outside of the Frame Side Member-Right due to the "new" Muffler Outlet Pipe Clamp, A-5256-C. This change appears in the March, 1929 Ford Service Bulletin, page 327.

January 30, 1929 Release Number 11861, the Front Cross Member was once again changed to a fifth style, because it "added two bosses 5/32-inch high around holes for radiator bolts and changed shape at top of rear flange." In viewing different





frames in this time period and earlier, one will see that when placing a ruler on top of the frame going directly over the radiator mounting pad, you will see about an 1/8inch gap. In viewing later frames, and doing the same process, there is no gap since the pad is flush with the top part of the frame. Thus Frame Assembly A-5005-B (Style 4) came about sometime after March, 1929. Could this be the reason for the new radiator mounting bolts as explained in the September, 1929 Ford Service Bulletin, page 377? If so, this bolt went in conjunction with the Style 4 Front Cross Member change.

In February, two of the holes for the battery support bracket were removed from the front flange of the Center Cross Member.

March 15, 1929, Release Number 12280 saw a change in the Front Cross Member that "specified that one hole for lug on starting crank bearing be elongated instead of being round" (**Fig. 12**). This constituted a change in the Starting Crank Bearing, A-5461, (Style 4), in that it "changed distance between centerline of bearing and one locating lug from 1-1/8 to 1-3/8 (inch), making location of lugs symmetrical."

On April 6, 1929, the top flange and holes for fastening the body to the Frame to Body Bracket – Front, A-5075 was redesigned (not confirmed).

In May, the 3/4 inch hole for the Emergency Hand Brake Lever to Cross Shaft Rod was removed from the rear face of the Center Cross Member. By July 22, 1929 Release Number 13488, two sets of







holes each consisting of three 17/64 inch holes for the "new" style stop light switch, were added to the rear face of the Center Cross Member. This "new" switch came into production in October, 1929*. The Ford Service Bulletin for January, 1930, page 416 shows the attachment of the switch to the rear cross member. It was also specified that two punched out slugs from the top of the Center Cross Member (**Fig. 13**) were to be used for blanks in forming the Front Brake Rod Spring Brackets, A-2504. This, however, was implemented about September, 1929.

By the end of August, 1929, the number of holes to attach the Front Fender Brackets were changed from three to four on the front of the Frame Side Members to accommodate a new style fender bracket. This bracket, however, took only two bolts to hold it to the frame. Only one hole was added and that was directly above the lower most hole for the old bracket. This feature was included in the November, 1929 Ford Service Bulletin, page 394.

On September 4, 1929, Release Number 13857, the width (length) of the horizontal pad on the Hood Shelf Support Bracket was changed from 1-3/4 inches to 2-3/32

inches and the length of the two slotted holes went from 3/16 inch to 19/32 inch (Fig. 15).

FRAME ASSEMBLY A-5005-C

With the incorporation of the sixth style Front Cross Member A-5020-B (Fig. 14), on September 30, 1929, Release Number 14053 Frame Assembly A-5005-B was "superceded by A-5005-C for production and service." Where the radiator mounting pad on Frame Assembly A-5005-B (Style 4), was "raised," or flush with the frame, the new Front Cross Member on Frame Assembly A-5005-C, had lowered this area to become "recessed." This feature shows up in the October, 1929 Ford Service Bulletin, page 387. October saw the Frame to Engine Rear Support Plate became a steel stamping with clipped corners (Fig. 16).

December 5, 1929, saw the addition of a 7/8 inch hole on the Front Cross Member for the radiator overflow tube. By January, 1930, it was specified that the holes for the wheel carrier be drilled in place and that all frames were to be center punched to show the location of the holes (**Fig. 17**).

January 30, 1930, specified the new Starting Crank Bearing, A-5461-B, (Style 5), "for full production on 1929-30 A and AF Chassis." This "new" Starting Crank Bearing saw it's beginning as an "Exp. Mfg." experimental manufacturing in late August, 1929. Not sure when it made its appearance on the assembly line although it shows up in the February, 1930 Ford Service Bulletin as a "new" part.









In April, the second design Emergency Brake Cross Shaft was implemented onto the chassis. This design apparently had been thought of way back in December, 1928. It required a major change in the Frame Side Members in which the hole for the Emergency Brake Cross Shaft Lubricator Fitting was removed. The hole was made larger with the addition of a "pocket" in the side members for the cross shaft bushing. Included in this change was the addition of a hole on the back side of the Center Cross Member to attach the **Emergency Brake Cross Shaft Support** Bracket to. The shaft extended through the holes on both sides of the frame. This feature shows up in the April, 1930 Ford Service Bulletin, page 449.

July saw the removal of the upper hole for the Front Fender Bracket, which was added back in August of 1929. There was also the relocation of the four lower rivet holes for attaching the bottom flange of the Front Cross Member to the Frame Side members (not confirmed).

FRAME ASSEMBLY A-5005-D

On September 18, 1930, Release Number 17050 Supplement #18 saw the Body Bracket on Frame - Front move to the rear 2-3/8 inches (Fig. 18). Ford decided to "number" the holes in the frame for the "convenience in identifying holes." The proper numbering of these frame holes can be found in the MARC/MAFCA Restoration Guidelines and Judging Standards. The release also indicated the addition of Frame Assembly A-5005-D. Frame Assembly A-5005-D differed from Frame Assembly, A-5005-C in only one major aspect and that was A-5005-D had the addition of the Frame Body Bracket #6 Body Bolt, A-5076. It was located just in front of the rear running board bracket (Fig. 19). This frame was assigned to the Standard Fordor Sedan 160-A, the Town Sedan 160-B and the Victoria 190-A. Frames without this bracket may be center punched to show the location.



The May 16, 1931, Release Number 19799 specified that the foot of the Running Board Brackets be revised in that ribs be put on each side of the top rivet hole to increase the strength and prevent breakage "as soon as the dies can be made." Three more cars were added to the list for Frame Assembly A-5005-D in May, 1931. Those were the Deluxe Fordor Sedan, 160-C, the Town Car Delivery 295-A, and the Convertible Sedan 400-A. The frame has also been associated with the Cabriolet 68-C, but was never mentioned in any of the Ford releases that were reviewed.



I would like to thank the following people who contributed many pictures for this article: Doug Braun, Floyd Breech, Kevin Fehr, Don Gibbard, Fred Gooding, Jim Mason, Richard Miller, Tom Moniz, Peter "Swampy" Noyes, Roger Van Houten and Thomas Wesenberg. I would also like to thank the many of you who have submitted frame information that is included on my Web site, www.plucks329s.org. Without your information, this study would have been impossible. I would also like to thank the Henry Ford Museum and Greenfield Village Research Center and the Benson Ford Research Center for all the data that was provided.

* see the MAFCA/MARC Restoration Guidelines and Judging Standards.

