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1967 to 1973 Ford 4 Speed Toploader Identification and Detailing Guide

M A R C U S A N G H E L

The Toploader transmission was first introduced in the 1964 model year and was developed as the replacement to the Borg Warner transmissions that Ford was using up until that time for 3 and 4 speed manual transmissions. The Toploader name itself comes from the fact that the internal parts are assembled and installed thru the top of the case versus the side of the case (like with the T-10) that most transmissions of that time were utilizing.

Almost all Ford and Mercury cars from 1965 to 1973 had the Toploader available as an option. In part the transmission was developed to hold up to the power of the big block engines of that time and also the super high output small block engines. Ford's investment in racing was a big part of what helped develop some of the greatest engines, transmissions and rear axles of that time—many of which like the Toploaders are still in use today in various forms over 50 years later.

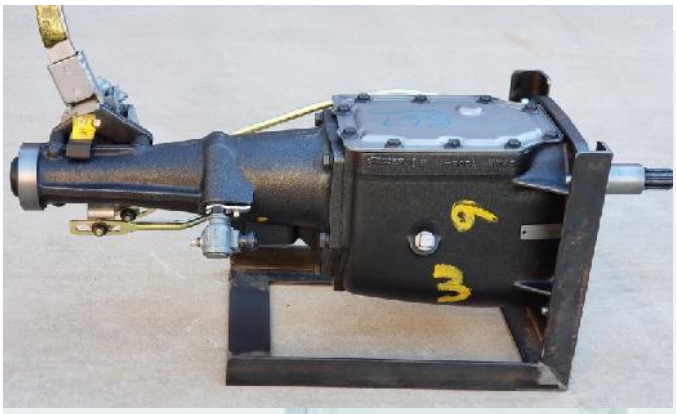
With all the different models of cars and trucks the Toploader was made with 133 different versions. Variations of the toploader include the overall length, wide or close ratios, output spline shaft, input shaft diameters, and small 4 hole or wide 4 hole cases. The metal ID tags that each transmission has should help to identify application and internal gearing.

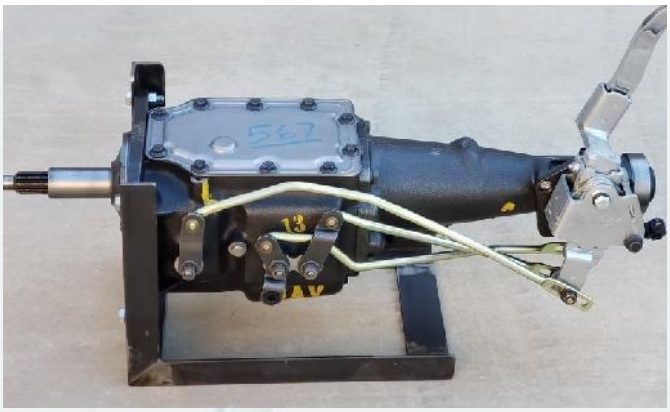
This article will help with detailing and identification focusing on the 1967 to 1973 Toploaders that were installed in Mustangs, Shelby's and Cougars for concours appearance and function.

Toploader 4 Speed Case

The heart of the toploader is the case itself. This piece is extremely durable because it was manufactured from a one piece iron casting that had been machined to hold all of the gears. In very rare instances were these cases ever damaged speaking of how strong they were from the start. During 1967 to 1973 production there was three different cases used:

- C5AR-7006-D Used into 1968 model year
- C8AR-7006-D Used from 1968 into 1971
- D2AR-7006-CA Used from late 1971 to 1972
- D2AR-7006-CB Used from 1972 to 1973





Date Codes

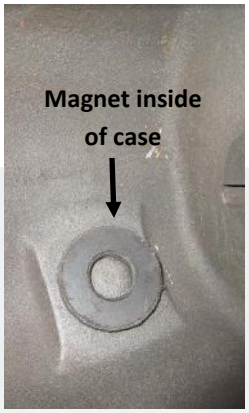
Date codes are cast into the cases as shown below and are in a month/day/year format with the casting number next to it. Date codes can precede the build date of the car by a few week or a few months in some cases.

Drain plug

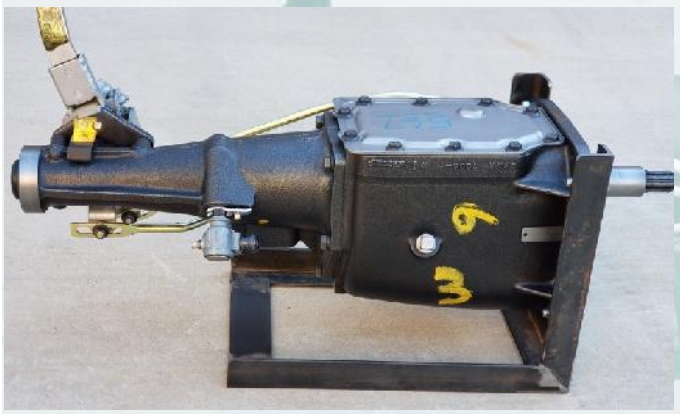
A magnetic drain plug was installed on the bottom of the toploader transmissions from 1967 and used well into late in the 1969 model year. Then starting in the 1970 model year they were no longer added into the bottom of the case. You can still the flat area where the drain plug would have been installed. Drain plug could have no markings, or marked as shown, and always would be magnetic.

No Drain plug

Starting in late 1969 the toploader cases no longer used a magnetic drain plug but instead had a magnet installed inside the case as shown below. You can still see the flat area where the plug would have been located in the casting from the outside.



Fill plug



The fill plugs on the top-loaders are on the side of the case as shown and would typically have a fill plug with a W stamped on the end as the example shows . Natural finish.

Top Cover

The top cover would be a natural steel finish as shown, held in place with 10 phosphate finish bolts (2 of the bolts are longer than the other 8). Typically the top cover has a LM stamping on it and could have been hand marked with either the transmission code or the rotation number to help match it to the car during assembly.

Tail housing (Extension housing)

Overall there is about a dozen different version tail housings, but to stay within the context of this guide we are just listing the versions that were used in Mustangs and Cougars. Although the shifter mounting locations are different, the one common item with all the listed tail housings here is they are 14 inches in overall length. Anything longer would have been used in Fairlanes, Galaxies, Torinos etc., and also have different engineering numbers, so that makes it easier to narrow down.

The other major difference in the housings listed here is the machined area of the output seal. In some cases this is larger or smaller to accommodate a smaller or larger spline output shaft. Engineering numbers would not change even though the machined sizes are different. Listing as follows:

C4ZR-7A040-A 1965 to 1973 with 289, 302 or 351 engines. 28 spline output

C6OR-7A040-C 1966 to 1969 with 390, 428 or 429 engines. 28 or 31 spline output

C6OR-7A040-D (Rare) 1967 GT500 and 1968 428 engines. 31 spline output

C7OR-7A040-A 1966 to 1969 with 390, 428 or 429 engines. 28 or 31 spline output

DOZR-7A040-A 1970 to 1973 with 302, 351, 428 or 429 engines. 28 or 31 spline output

C4ZR-7A040-A

C6OR-7A040-C

Tail housing (Extension housing), cont.

C7OR-7A040-A

DOZR-7A040-A: Starting in 1970 model year Ford started using this tailshaft. This unit was designed to accommodate both big block and small block applications and different shifter mountings in one and the same casting. As shown below the single casting would have been machined with either big block or small block shifter locations eliminating the need for multiple different tail housings to be used. It also was machined for either 28 or 31 spline outputs.

Note the bare machined metal surfaces for this Boss302 transmission as was originally done especially the area around the output seal.

The original output seals were a felt style seal as shown here. Originals are extremely hard to find now but a necessary detail for thorobred detailing.

Input and Output Shafts

Toploader transmissions had two different size input and output shafts. These were for the big block and the small block applications with the larger sizes being for the big block for the added power and torque. The exception to this would be a car equipped with a 390 that could be either a 28 or 31 spline output. 1 1/16 smaller input shaft shown on left side of photos and the larger 1 3/8 shown on the right side of photos. Both are a 10 spline shaft.

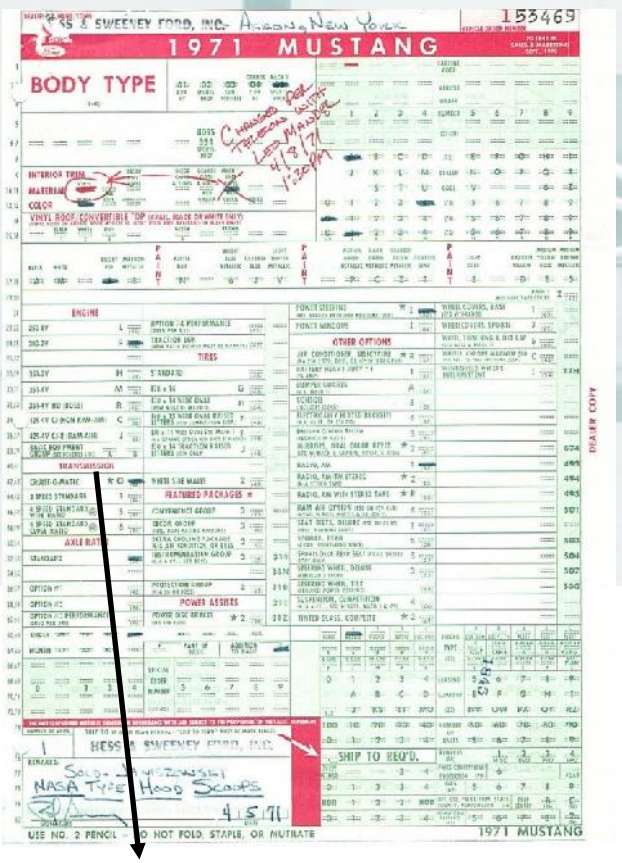
Output shafts: 28 spline output shaft on the left side of photos and 31 spline output shaft on the right side of photos.

Close and Wide Ratio Transmissions

At the time of order the customer could pick and choose if they wanted a close or wide ratio transmission (for 28 spline transmissions) at no added cost as this was part of the order sheet at the dealer. Alternately, the dealer could order as needed for inventory or Ford could have built cars for stock orders as was decided. This created many different versions of close and wide ratio transmissions mated to different ratio rear ends.

In general the close ratio is all about quick acceleration, with the wide ratio being more about open road driving. What's best depends on the owner and style of driving.

Ratio Type	1st	2nd	3rd	4th
Close Ratio	2.32	1.69	1.29	1.00
Wide Ratio	2.78	1.93	1.36	1.00



Shown here are a 1970 and 1971 Mustang order sheet. That sheet shows where the dealer or the customer can order a car with a wide or close ratio transmission. This was a no cost feature.

Seat Belt Warning Sensor

Starting in the 1972 model year (for cars built after about December 1 1971) the toploader cases now had an added provision for a seat belt sensor and mounting bracket. The toploader cases that had this would be the D2AR-7006-CB version cases as shown here below.

The actual seat belt sensor switch was a part number D2OZ-7E449-A and would have been marked with the engineering number of D2AR-7E449-BA and also be date coded. The switch shown here has a date code of 1KB which would translate to second week of October 1971.

VIN Stamping

The Vehicle Identification Number (VIN), if stamped, would be on the transmission case as shown here which is normally on the front left ear of the transmission and on top. Not all transmissions were stamped, and not all in exactly the same manner or place as shown here, however this is typical and does help to match a complete original drivetrain.

Transmission ID Tags

Each transmission from the factory came with a steel tag that had a drive rivet holding it in place. Two lines on the transmission—one being the transmission model and the other being the serial number. All Mustang and Cougar tags are listed here below and listed alphabetically by tag number.

Code	Year	Engine	Ratio	Comments
RUG-AD	1968	390	Close	28 spline
RUG-AD1	1969	390	Close	28 spline
RUG-AE	1968	428	Close	31 spline
RUG-AE1	1968/1969	428	Close	31 spline
RUG-AE2	1969	428, Boss 429	Close	31 spline
RUG-AG	1969	302, 351	Close	28 spline

Transmission ID Tags, continued

Code	Year	Engine	Ratio	Comments
RUG-AV	1970	302, 351	Wide	28 spline
RUG-AV1	1970/1971	302-4V, 351-4V	Wide	28 spline
RUG-AW	1970	302, 351	Close	28 spline
RUG-AW1	1970/1971	302-4V, 351-4V	Close	28 spline
RUG-AZ	1970	428 CJ, Boss 429	Close	31 spline
RUG-AZ1	1971	429-4V	Close	31 spline
RUG-BJ	1971	351 CJ, Boss 351	Wide	Before 12/1/71 28-spline
RUG-BJ1	1972	351 CJ, Boss 351	Wide	After 12/1/71 28-spline
RUG-E	1967	289	Wide	28 spline
RUG-E1	1967	289	Wide	28 spline
RUG-E2	1968	289	Wide	28 spline
RUG-E3	1969	302, 351	Wide	28 spline
RUG-M	1967	390	Wide	28 spline
RUG-M1	1967	390	Wide	28 spline
RUG-M2	1968	390	Wide	28 spline
RUG-M3	1969	390	Wide	28 spline
RUG-N	1967	289	Close	28 spline
RUG-N1	1967	289	Close	28 spline
RUG-N2	1968	289	Close	28 spline
RUG-N3	1968	289	Close	28 spline
RUG-S	1968	428	Close	31 spline

Stampings and paint markings

Shown here are some of the more common paint markings and stampings that would be seen on toploaders thru the years. These just serve as general examples and should not indicate what should be on a particular transmission. The best resource (if possible) is to clean and uncover existing markings or look at similar transmissions from that similar time as a reference. When in doubt, less paint markings is always better than more.

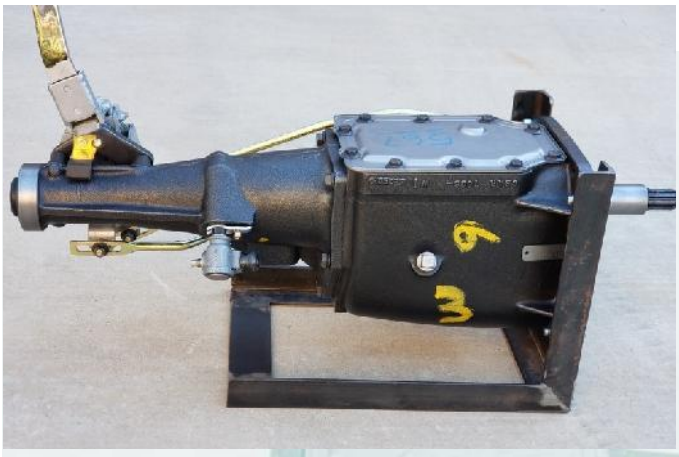
Stampings and paint markings, continued

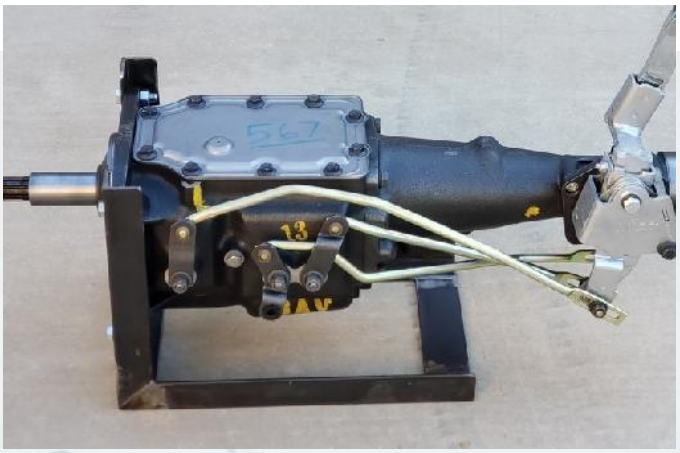
One of the most common markings on transmissions is the yellow ink stamp towards the bottom that was an easy way to identify the transmission. Examples shown here include GAZ for a RUG-AZ toploader and GAE for a RUG-AE unit.

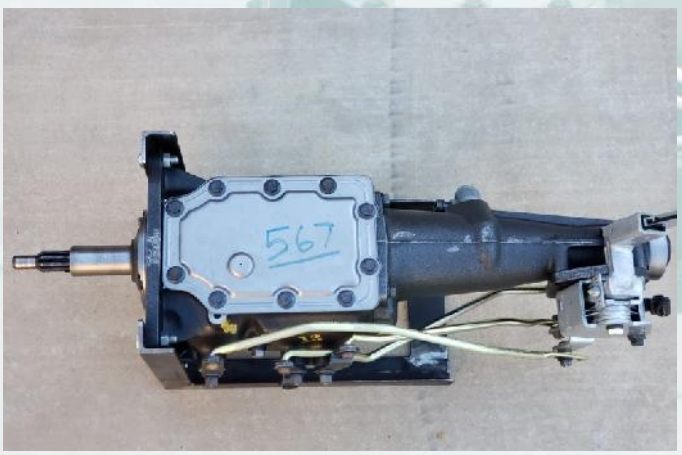
A numerical inspector stamp is typically seen on the side of the case where the shift forks are located. Random numbers appear here as single or double digits and also typically in yellow.

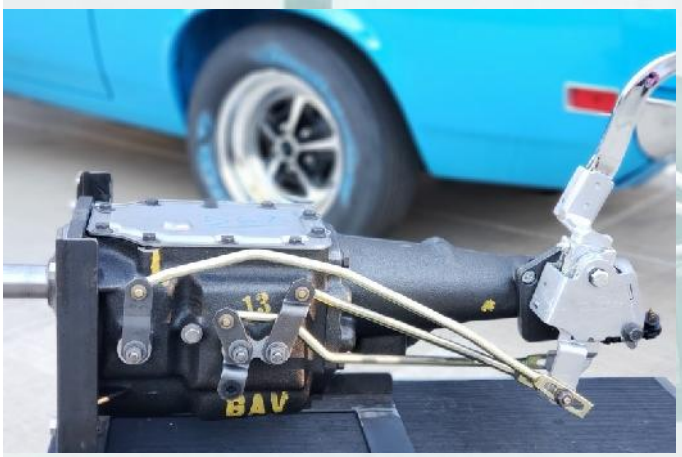
Putting it all together

Photos here show what a detailed and assembled toploader can look like when its finished. This unit here all the paint markings were copied and put back in place with all the original stampings. All the finishes are as original with attention to machined areas that will show once assembled. This unit is a RUG-AV from a 1970 Boss 302.









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R E S T O R A T I O N S

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Edits and Changes

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Added reference to the C6OR-7A040-D tailshaft housing on page 4. Thanks to Chris Page.