
MUSTANG SALVAGE

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Mustang Salvage of Tennessee

We Buy Junk '65 - '73 Mustangs
And '67 - '70 Cougars

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Specialize In
Hard To Find
Parts

Rear End

Booklet

Lets begin by stating that this booklet will deal mainly with Ford Factory Rear End set-ups. We will cover briefly racing rears such as Lockers. Because of the design of racing rears, they are not very streetable and sometimes dangerous such as rainy weather or extremely curvy roads. Therefore we will center our attention on factory posies. First, let me give a brief description of a factory posi. A ford factory posi puts engine power to both rear wheels through the use of clutch packs contained within the rear end itself, (see photos 1&2). Upon coring however the axle will exert pressure on the clutch pack and let the car corner without any difficulty.

Identifying a factory posi outside of a differential housing is an easy task, (see photo 3). Because of the extra room needed for the clutch packs, the housing where the ring gear bolts on is thicker. The bolts that hold the ring gear on to the center section are 5/8" bolt heads and are counter sunk into the housing, (see photos 3&4 marked posi). Ring gear bolts on non-posi rear are 3/4" heads and entire head extrudes from housing, (see photo 3&4 regular gear). Notice in photo 2 the center section housing is machined to counter sink the 5/8" bolt heads of a posi. This machining however tends to weaken the housing. Always look for cracks between the bolts on this side of the housing before you buy!

Now lets look at photo 5, close up of a posi center section case. Notice two things, (1) counter sunk machining for bolts. (2) Look at the axle splines in the center. Notice the splines seem to be split in the middle. The axle splines on this side of a posi is actually 2 gears. One is a splined side gear, the other hooks to the clutch packs. All ford posis will have this split gear set-up where the axle splines are! Non-posis will not have a split in the splines because there is no clutch pack side, only one side gear in a non-posi per side. Identification of a posi still in a car is achieved in a number of ways. (1) If the original tag is still attached to the rear end, its attached to one of the 9/16" nuts which hold the chunk into the housing. Check the lower left corner of the tag. The ratio is stamped there. If the tag reads for example 3.00 it is not a posi (see photo #14). On the other hand, if it reads 3L00 it is a posi. The key is the L instead of a decimal point. All ford posi have this L. It stands for Locking.

(2) If there is no tag, pull the fill plug on the right side of the chunk. Look in and see the ring gear attaching bolts. Counter sunk 5/8" bolts is a posi, 3/4" bolts extruding is a non-posi. A flashlight may aid in this project. You may have to turn the yoke to get a bolt into view. See photos 6&7.

Now, lets identify a Shim Lock or Homemade Posi. It is a regular rear end with a couple of extra shims behind the 2 side gears. Any rear can be shim locked for under \$10.00 so don't be taken in by smooth talk. A shim locked rear will look just like a regular rear. No clutch packs - no counter sunk bolts - no 5/8" bolt heads on the ring gear.

Now lets look at the two factory posies, Equal Lock and Traction Lock. The equal lock was the first of the two modern posies. They both contain clutch packs and a split gear set-up on the axle side (photo #5). But there is an internal difference as well as an external. Lets first cover external for identification (look at photo #8). Both contain 5/8" bolt heads for ring gear adhesion. However, notice case difference between the two. Now look at photo #9. Notice arrow points towards a built in oil slinger. This is only on an Equal Lock. Traction Locks do not have an oil slinger. Now internally Traction Locks use a 2 or 4 pinion set-up with 4 springs in the pinion block to add side pressure. Equal Locks are 2 pinion only and do not have pinion blocks. They use compressed washer shims to add side pressure or preload. Both work, but most people tend to lean to the newer Traction Lock 4 pinion for heavier duty applications.

Identification of a Dapco No-spin, or better known as a Detroit Locker, is a fairly simple task. It has no clutch packs. It utilizes a gear and tooth set-up with spring loaded axle collars. It has no pinion shafts or spider gears, therefore when you look in the axle hole you can see all the way through the rear end (see photo #10). Also the carrier housing is not drilled for pinion shafts.

Nodular cases are a stronger casting with nodular iron. There are 3 casting numbers for Nodular Rears, (1) D00W-B (2) D00Z-B (3) C4AW-B. The first two can be identified by a huge N cast into the chunk, visible above the pinion yoke (see photo #11). The third however must be removed from the rear end housing. The casting numbers will be on the inside of the case (see photo #12). Also see N before part number. Notice also the N cast into the axle caps (circled in photo #12). All Nodulars will carry one of these three part numbers. However not all Nodulars have Nodular caps.

Now for spline size. For chunk style rears there are two spline sizes, 28 and 31. 31 spline is stronger and was put out in big block performace cars such as 427's and 428's Mustangs and Torino's. (Also trucks and 4 wheel drives, although we will not cover these axles because of different bolt pattern). Look at photo #13. Notice center hub on a 28 spline axle. You will never see this center hub on a 31 spline. However, you will see 28 spline axles with a center hub like axle B. Since most axles are 28 spline we'll concentrate on 31 splines and how to identify them. When looking at a rear end still together, checking for 31 spline axles, both axles must look like axle B. If both look like axle B in photo 13 go to the chunk and locate rear end tag. Look at letters in upper left corner above ratio. These letters identify spline size (see list of 31 spline axles in alphabetical order). If the letters are listed it is a 31 spline, if not it is a 28 spline. This list covers 9" gear sets in cars only. It does not cover 9 3/8" ring gear axles as all of these are 31 spline. All 8" gear sets have 28 splines.

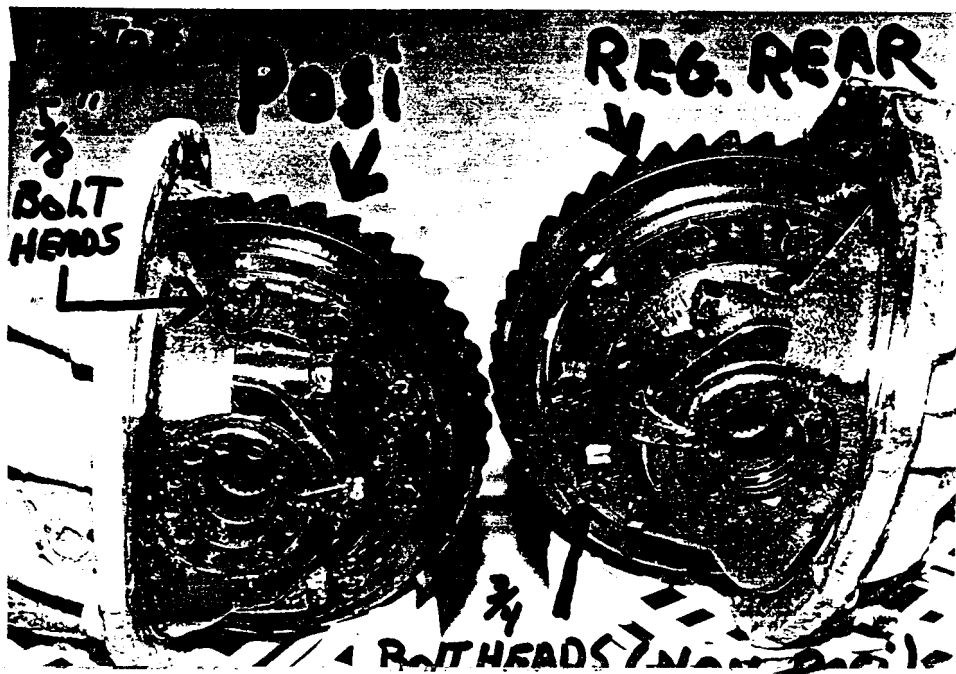
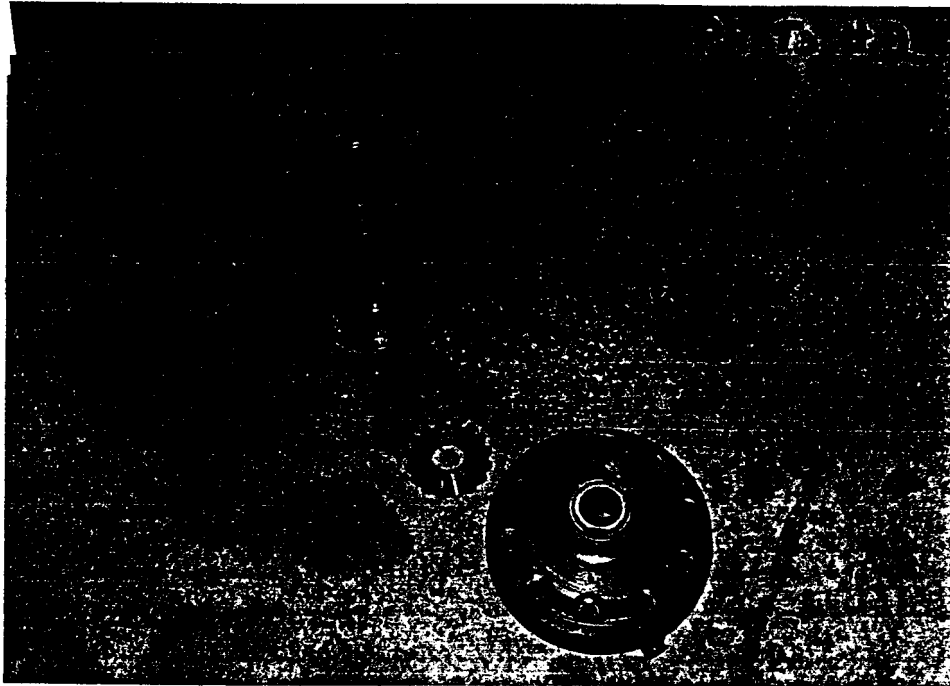
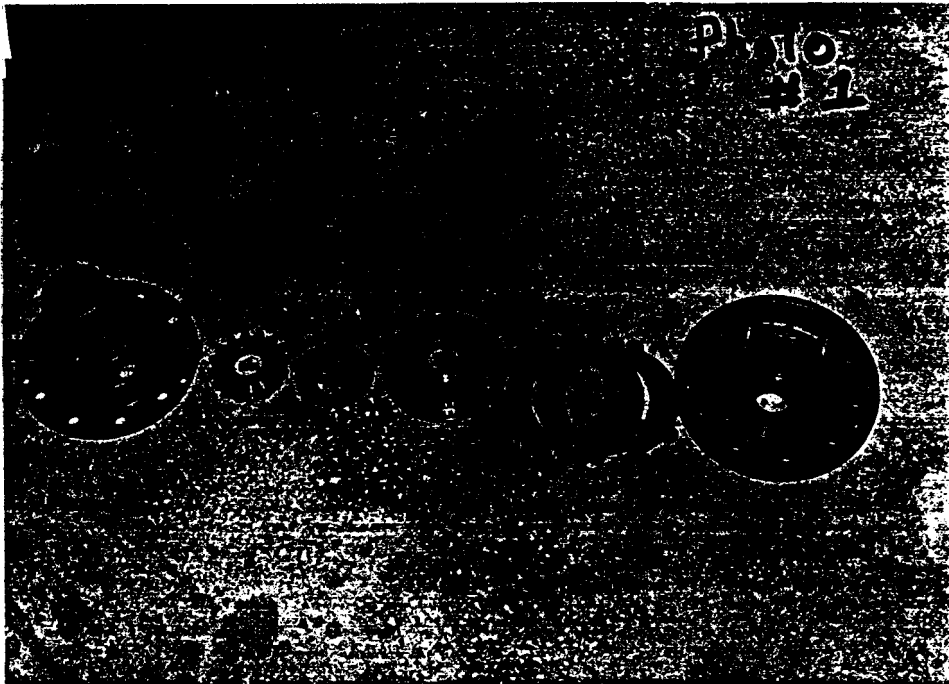
Nine inch housings being so popular its only natural to cover these briefly. The shortest housing factory built is around 52 inches flange to flange. They were put out in 1957-1959 Ford big cars, 1965-66 Mustang with Hi-Po motors. Also later in 1977-1980 Lincoln Versailles and 1977-1980 Granada. Although the last two are disk brake rear end set-ups.

List of 31 Spline axles using letter code in alphabetical order:

WDC-W	WFC-A	WFD-E
WDC-X	WFC-C	WFD-F
WDD-M2	WFC-D	WFD-FZ
WEB-AA	WFC-E	WFD-J
WEB-G	WFC-F	WFD-K
WEB-K	WFC-G	WFD-L
WEB-L	WFC-J	WFD-M
WEB-Z	WFC-K	WFD-M2
WEC-R	WFC-L	WFU-D
WEC-S	WFC-M	WFU-E
WEC-T	WFC-N	WFU-E1
WES-AE	WFC-R	WFU-F
WES-AH	WFC-S	
WES-AJ	WFD-A	
WES-AJ2	WFD-B	
WES-U	WFD-C	
WES-Y	WFD-D	

Upon closing let me say that this booklet is as accurate as humanly possible. I personally use this information in my shop at Mustang Salvage. However, I assume no responsibility for the inaccuracy of the information provided, if any, as it was obtained through hands-on experience. As with any information, the more you use it in a hands on fashion the more knowledgeable you become. I sincerely hope this information proves as valuable to you as it has to me in dealing with Ford rears.

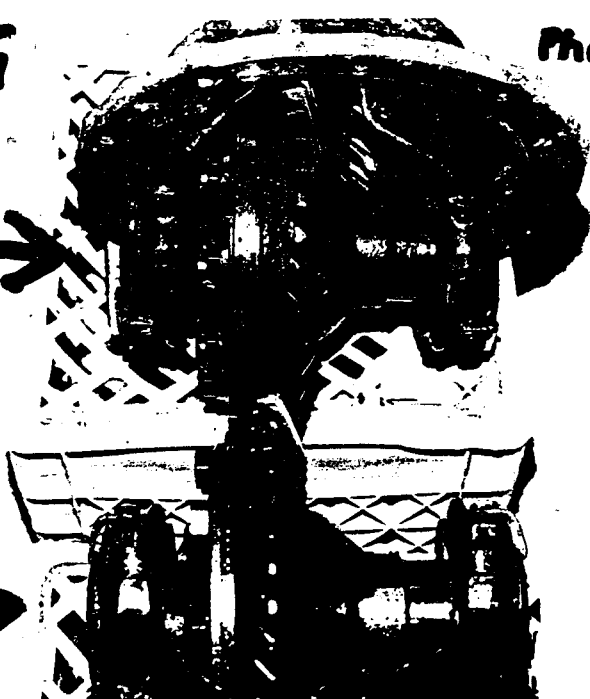
Thank you
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Posi

Photo #4

**REG.
REAR**



**SPLIT
GEAR**

Photo #5

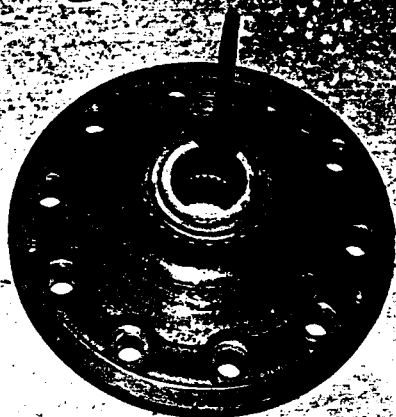


Photo #6

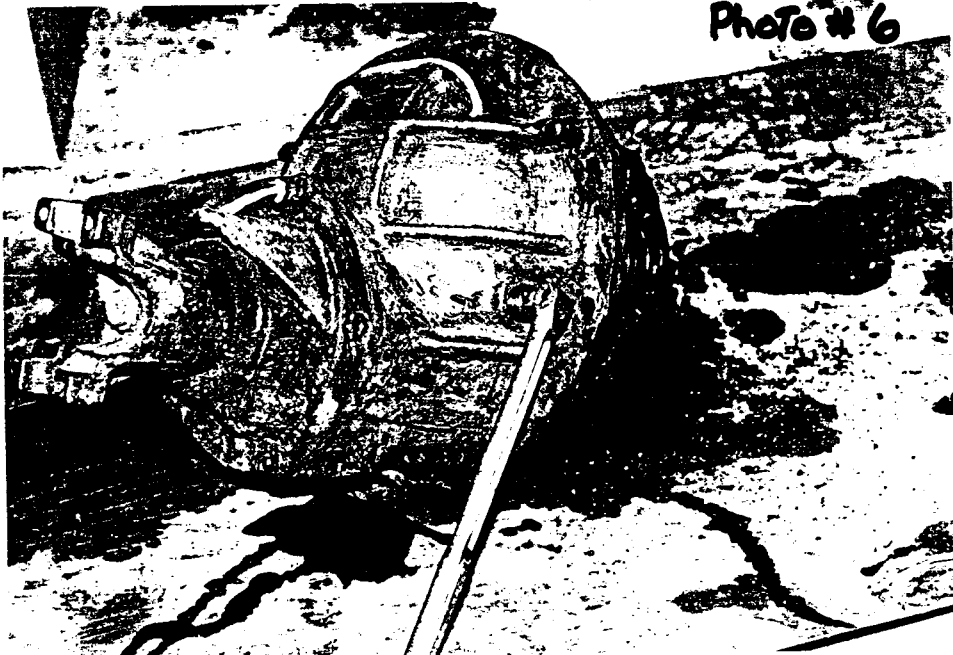


Photo # 7

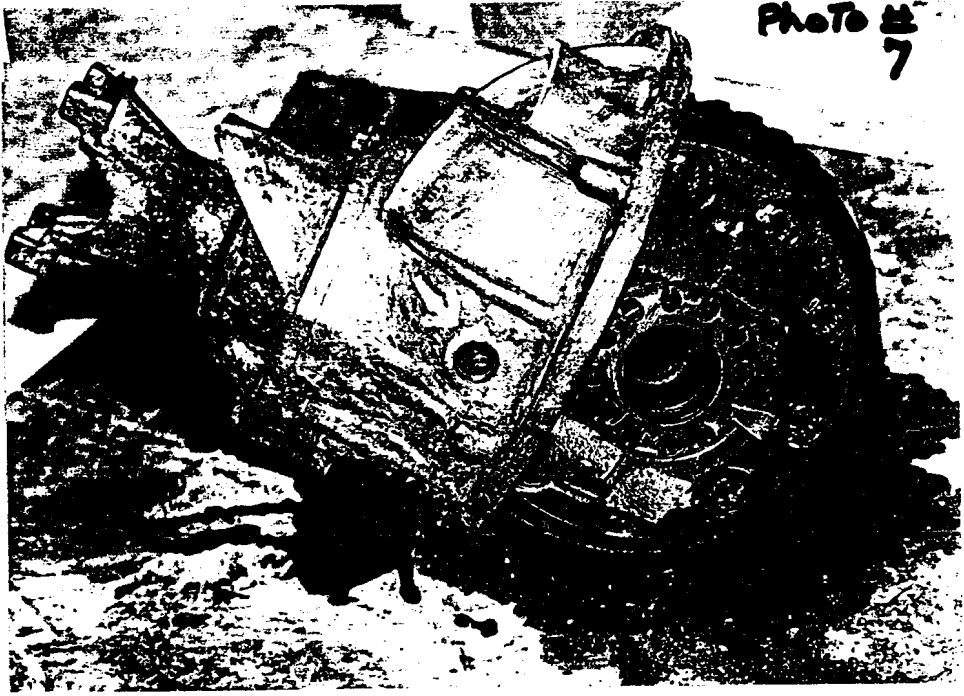
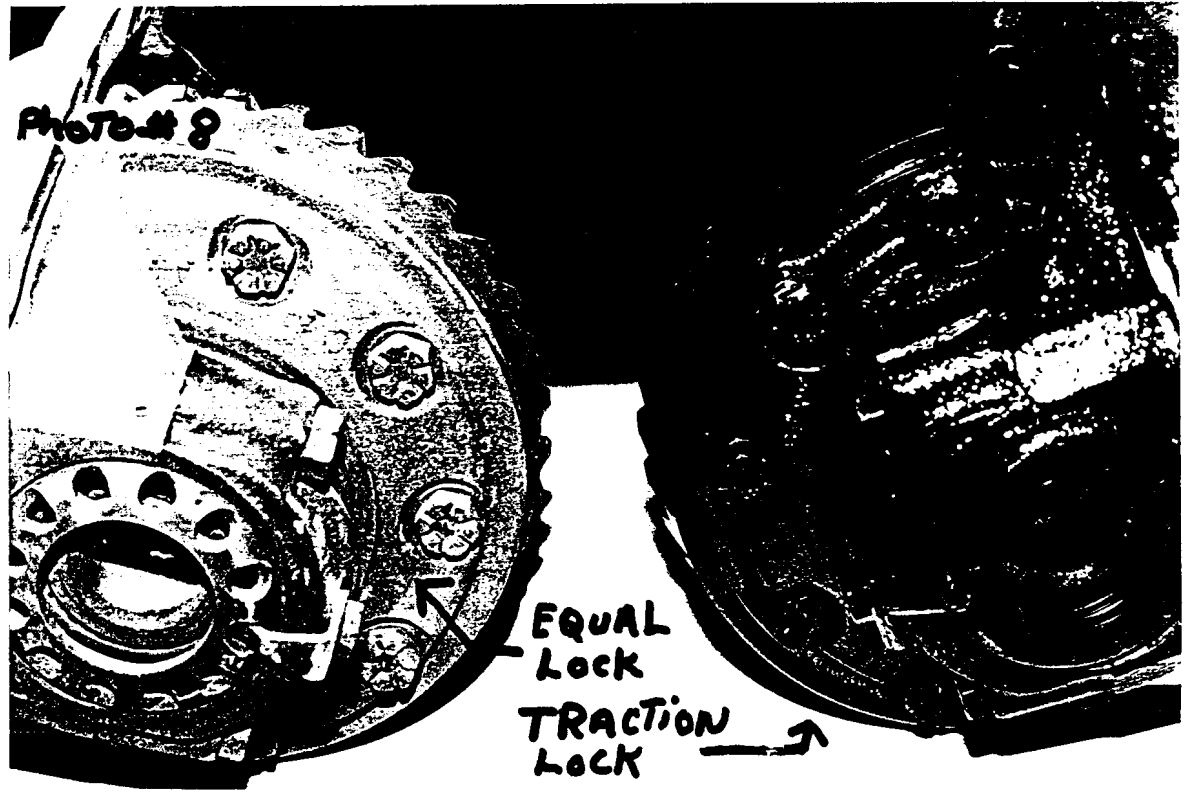


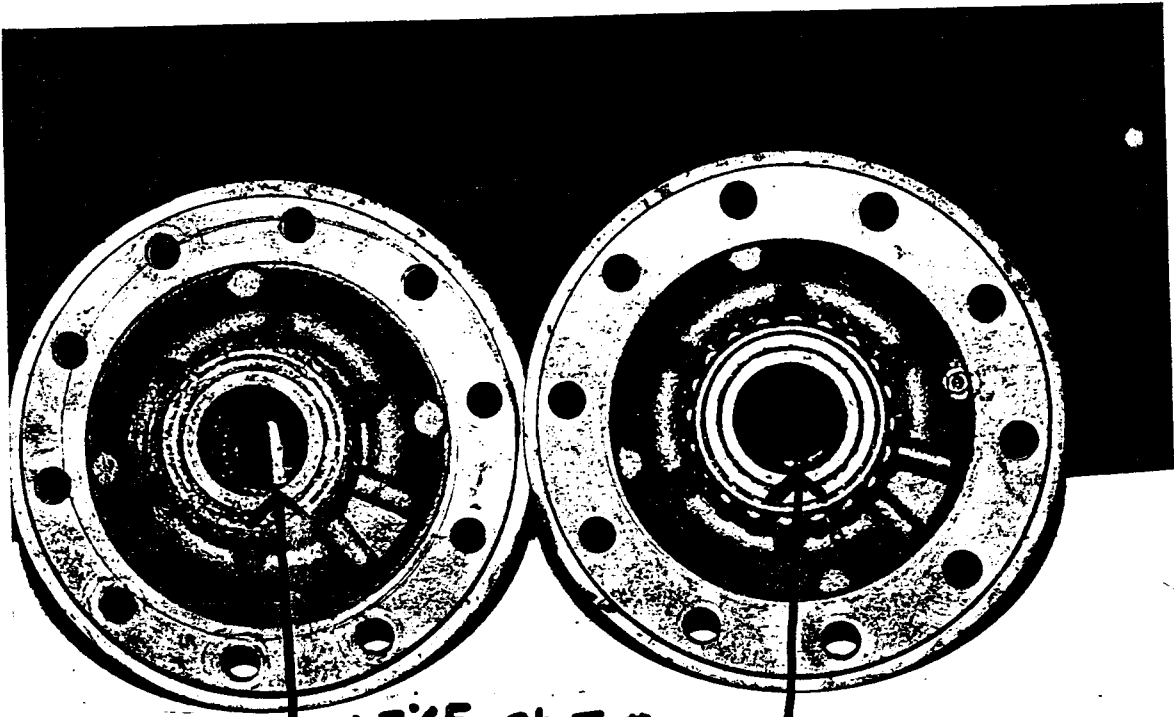
Photo # 8



Equal
Lock
Oil SLINGER

Photo# 9

TRACTION
Lock
(NO OIL SLINGER



PINION SHAFT

NOTICE Photo# 10

NO PINION SHAFT

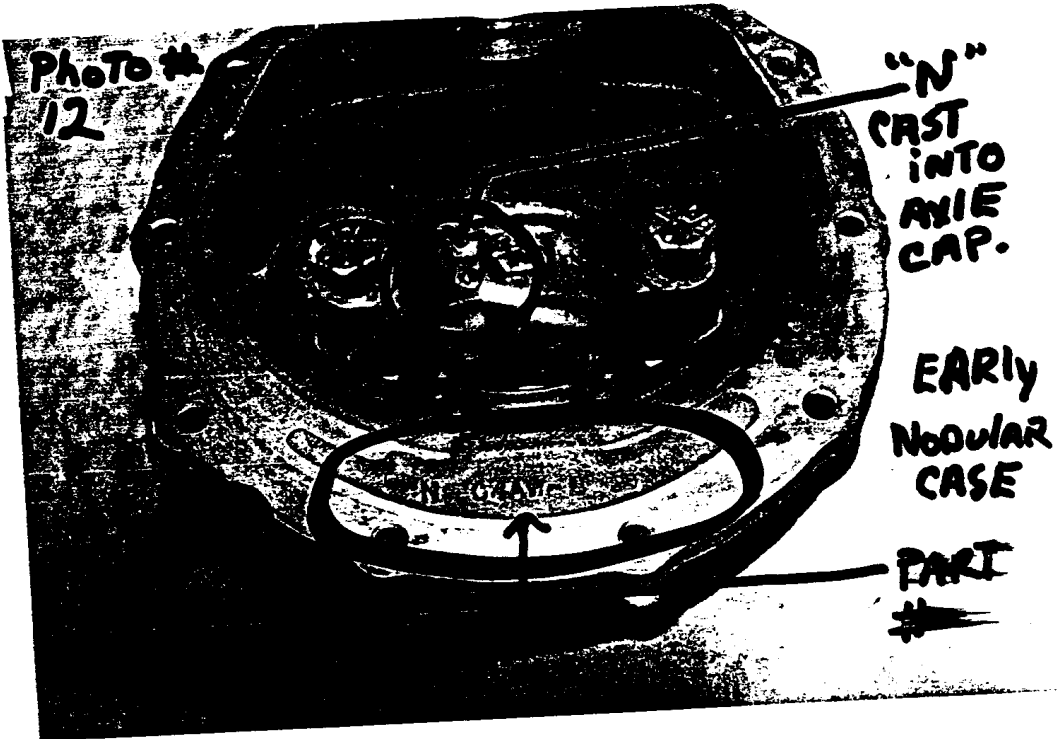
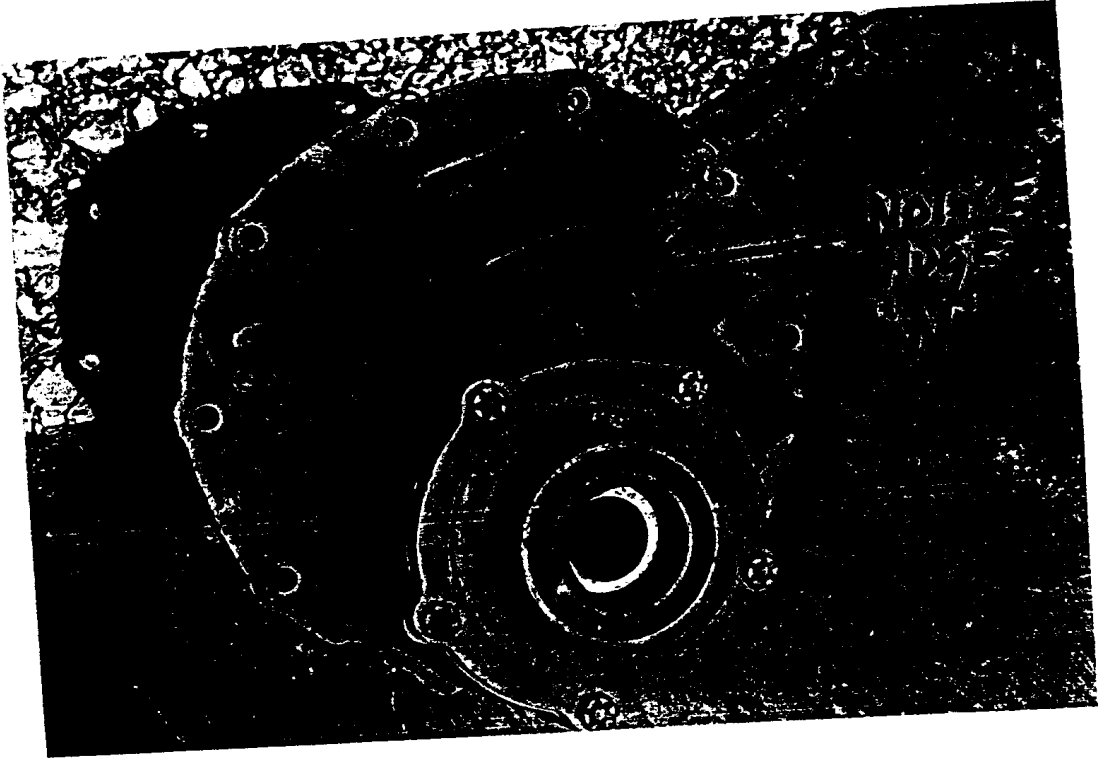


Photo #
12

"N"
CAST
INTO
AXLE
CAP.

EARLY
NODULAR
CASE

PART
#



Photo #
12



"N"
CAST
INTO
ANIE
CAP.

EARLY
NODULAR
CASE

PART
#

