

ODDS AND ENDS - FOR A-C-D FRIENDS

by

A. A. Goodman

CORD 810-812 PUMP PULLEY REDESIGN AND RADIATOR MODIFICATION

It is an open secret that the cooling system on Cords 810 and 812 leave much to be desired. Briefly, these cars overheat in traffic. After an open road run, where they do rather nicely, overheating is common if they have to lug along in city traffic. Therefore anything that can help the condition is desirable.

To this end the writer has been conducting some experimental changes for the past two years, and has finalized it down to some recommendations that should prove of interest.

The water pump was speeded up to get a better air flow, and in the first design the water pump pulley was reduced in size to increase the speed 25%. After a full summer of tests, it was found that this worked perfectly in city use and the car could go in the slowest city traffic for hours without overheating. However on the open road this extra speed of pump caused some overheating. Therefore it was redesigned to give a speed increase of approximately 10 to 12%, which sort of split the difference between the extreme benefits of the higher speed in city traffic and the detriment of the higher speed in highway traffic. The writer has prints of the experimental pump pulley for the 1938 Cord, in which the sizes of the 1938 Cord pulley would have been the exact size as he has finalized in the attached prints for the redesigned split pulley.

A split pulley was decided upon to facilitate the changing of the fan belt on the pump. With this split pulley a belt can be changed on the road in ten minutes without a lot of grief. In the first place, the split pulley divides in two and the belt falls right off. In the second place, a narrower belt is used to allow it to pass the heads of the mounting screws for the water inlet on the block. A narrower belt was used because of the longer life expectancy also, inasmuch as the wide belt used by Cords, according to Industry Standards, should not be used on a pulley less than 9 inches in diameter. The original Cord water pump pulley is 4-1/2 inches in diameter, which cuts the life expectancy of a belt to about only 25% of normal. The narrower belt is in keeping with modern thin belt designs, which are proving much longer lived than the heavier belt, especially where the pulley diameters are relatively small.

The belt used is any of the 5L-33 inch or 5L-34 inch belts that are procurable from any automotive or electrical appliance dealer. The 5L means 5/8" wide and the L means the light series. Do not let this mislead you, as the light series simply means a belt that will stand more flexing than the normal industrial B belt of the same size.

To use this split pulley, it is necessary, of course, to have an idler pulley for takeup. The design of the idler pulley is attached hereto with all of its bracket and other component parts. The ball bearing to use in the idler pulley, is a life lubricated, double seal bearing such as is used in the water pump of the Cord, but of course, in a larger size. The bearings that will fit are SKF 6204-2RS, Fafnir 204PP, MRC 204SZZ and Federal 1204RR.

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All of the components in the attached print should be cadmium plated for rust protection. The only exception is the idler pulley itself, if it is made of aluminum. If it is made out of brass or steel then it should be plated.

The radiator simply was altered by making two modifications. A shroud was engineered on the radiator to get better air flow past the lower left and right hand corners. Inasmuch as the fan is relatively close, in fact, entirely too close to the radiator, this poses a problem and the only shroud that can be used with some effect is a square type of shroud instead of a tapered type. In the square type, the shroud parallels the radiator instead of tapering from the edge of the radiator to the fan. The shroud opening should be in approximately the middle of the fan axially.

The radiator was also made into a divided flow radiator to eliminate the cavitation and by-passing of water in the top tank, inasmuch as the suction is from one side of the bottom tank which results in the suction tending to pull all the water to approximately three quarters of the radiator, and starving the opposite corner to the suction side of the bottom tank.

This was accomplished by sawing the top tank half way down with a hack saw, than engineering a 1/16" brass divider into this opening, making sure to notch the top of the core support in the tank to receive this plate to eliminate any side wobble of the plate in service. After this plate was hand fitted into a nice tight fit inside and outside, it was sweated on to the tank. The existing water filler hole was then covered by a plate which was sweated on.

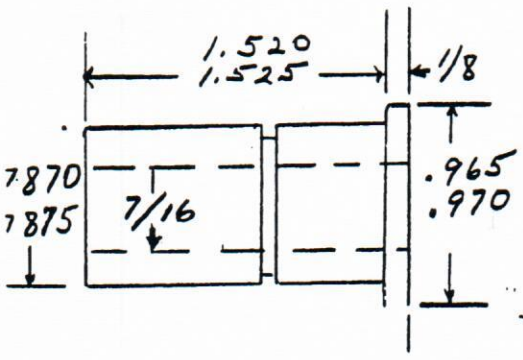
Dual filler pressure cap type of necks were then soldered on each side of center, (after a suitable size hole was cut into the top shell), and a 4 lb. pressure cap was used. It is important not to use any more than 4 lbs. inasmuch as the top tank has a tendency to "oil can", and high pressure might blow a seam out.

It is, of course, recommended that thermostats be definitely used in this Cord engine.

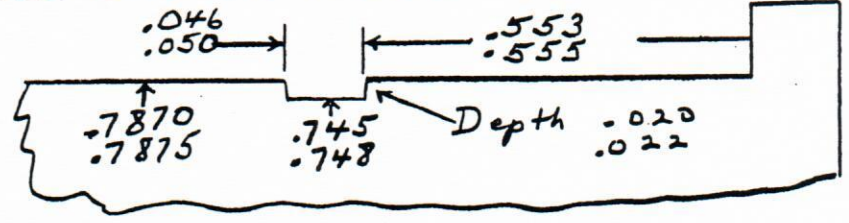
The net results should be a decided increase in performance, and if in addition the block is thoroughly cleaned out with one of the oxalic acid-neutralizer type of block cleaners, should give results compatible with any modern engine in todays traffic.

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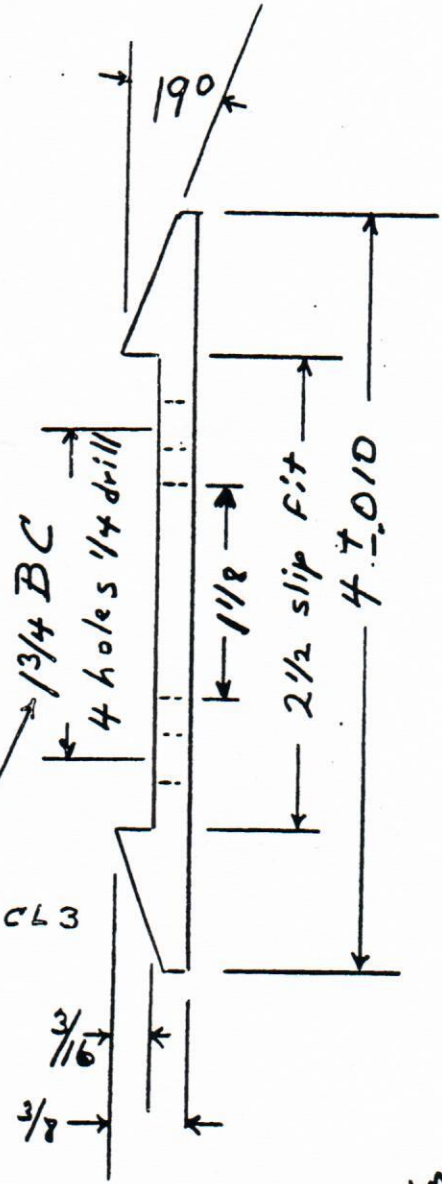
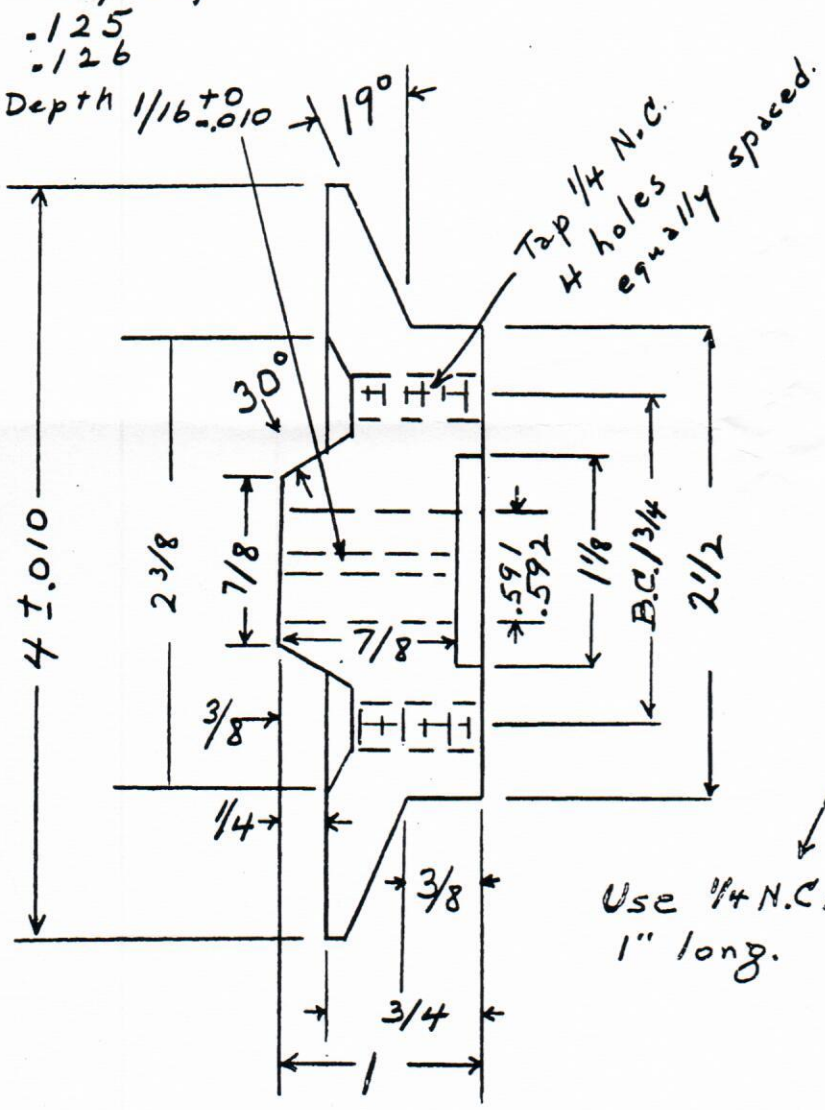
Use Waldes Truarc #5100-78



Groove Detail  
Idler Bearing Stud (steel)

Use 2 1/4 x 7/16 N.F. Alloy or Grade 5 Screw.

Keyway



Use 1/4 N.C.-CL3  
 1" long.

Pulley  
 Steel

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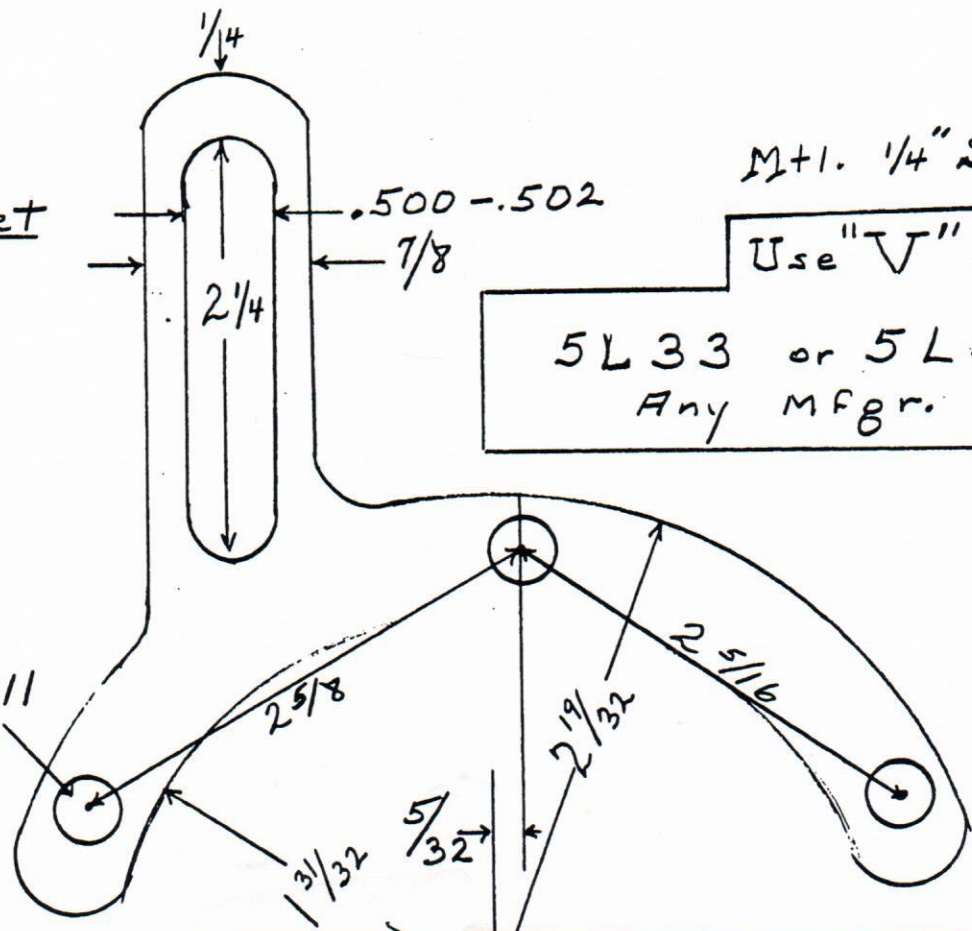
Idler Bracket

Mtl. 1/4" Steel

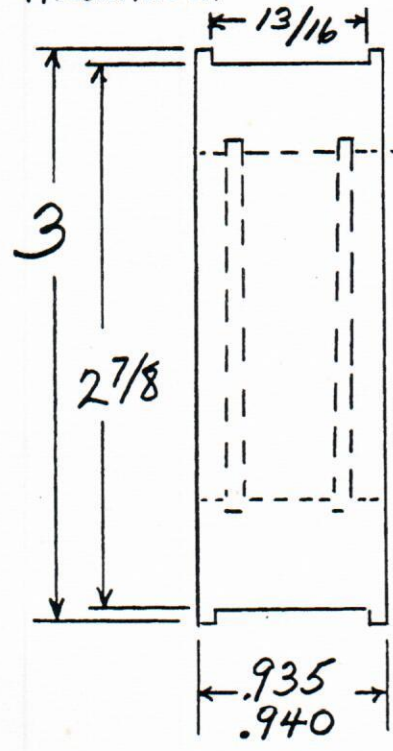
Use "V" belt

5L33 or 5L34  
Any Mfg.

1/32 drill  
3 holes



Aluminum

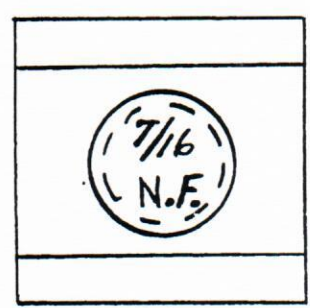


Idler Pulley

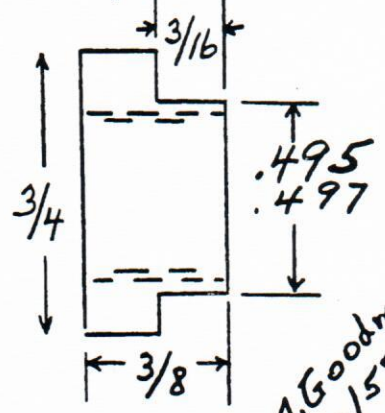


Bore Enlargement & Snap Ring Details  
Use - Waldes Truarc #5000-185

Idler Nut



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