Mitchell Overdrive Installation

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A suitable and safe spring spreader.

#1. The rear axle assembly is removed from the car and readied for the Mitchell install. It is not necessary to remove rear wheels, brake drums, backing plates, and rear radius rods.

#2. Close up view. The torque tube is to be removed by removing the safety wire and the six mounting bolts. Remove the speedometer drive assembly and the snap ring in front of the speedometer drive gear before pulling the torque tube off. The torque tube, drive shaft, and the speedometer drive gear assembly will be discarded. Speedometer operation will be obtained at the output gear of the overdrive. An extension speedometer cable is supplied with the Mitchell overdrive that will connect to the existing speedometer cable.

This series of 23 photos and comments illustrated are offered as an aid to the installation of a Mitchell overdrive in a Model A Ford.

A Mitchell overdrive can be installed in a Model A without completely disassembling the rear axle assembly. If the Model A is a good running car with no rear axle assembly issues the installation can be accomplished at a technical seminar in about six hours with the help of four willing workers.

The photos in this article show a rear axle housing with wheels, brake drums, backing plates, and rear radius rods removed. However, none of these need be removed to accommodate the installation of a Mitchell overdrive.

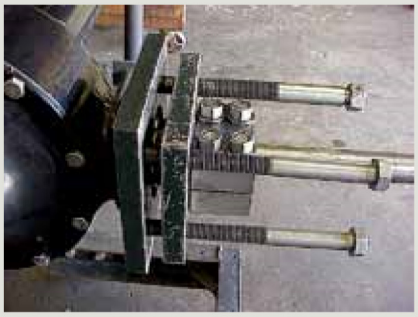
The first task is to remove the rear axle assembly from the car. A suitable spring spreader should be used. Once the spring has been spread the shackle bolts are removed. The spring and spring spreader are left installed under the car until the rear axle assembly with the Mitchell overdrive connected to it is ready for reinstallation. This is the safe method of going about the task of removal. Pulling the rear axle assembly from the car with the spring attached to it is unsafe. The center bolt holding the spring leafs together was never meant to hold the amount of tension packed into the rear spring. Should it come apart it could inflict serious injury.

Rear wheels, brake drums, backing plates, and rear radius rods need not be removed. Draining of the oil from the banjo is also not required. Place the car on suitable jack stands before beginning the task of removing the rear axle assembly. Follow the normal procedure for removing a rear axle assembly from a Model A.

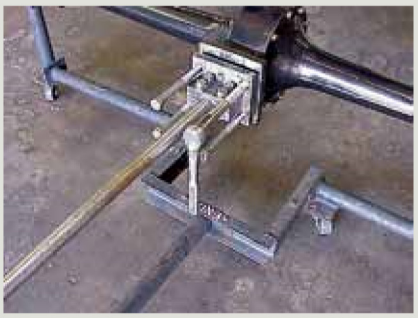
#3. The torque tube has been removed exposing the drive shaft.

#4. Close up view. The drive shaft and pinion gear assembly is to be removed without destroying the pre-load on the pinion bearings. The use of a drive shaft puller is required. Do not loosen the two large nuts as it will destroy the pre-load.

#5. The drive shaft puller tool is installed. It will pull the drive shaft and pinion assembly out of the banjo with the pre-load intact and not disturbed as long as the two large nuts are not loosened.



#6. Close up view of attached drive shaft puller tool.



#7. A socket wrench is used to operate the drive shaft puller tool.
Tighten each of the four bolts evenly.

#8. The drive shaft and pinion gear assembly have been removed from the banjo. If the rear radius rods were still installed they can be supported in the front with a jack stand to keep the banjo flange horizontal to prevent oil from spilling out.

#9. Close up view of the banjo with pinion removed. Oil in the banjo does not have to be drained.

#10. The removed drive shaft with pinion assembly is clamped in a vice and the puller tool removed.

#11. Close up view before puller tool is removed. The four nuts and bolts holding the clamping device to the drive shaft are to be loosened and the device slid off the drive shaft.

#12. Close up view of the individual parts of the drive shaft puller tool.

#13. The pinion gear and bearing assembly is ready to be removed from the drive shaft.

#14. Close up view. The cotter pin is to be removed and the nut backed off about 1\8". (Note that one leg of the cotter pin is bent over the end of the drive shaft. This should never be done as it may interfere with the rotation of the ring gear carrier. The correct method is to bend both legs of the cotter pin down along the side of the nut.)

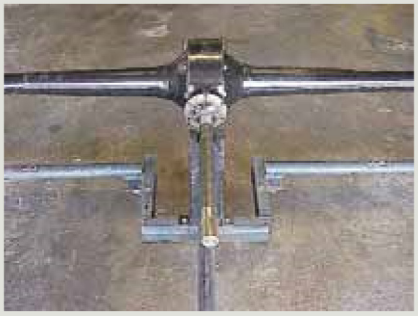
#15. A flywheel puller and a backing device are used to remove the pinion assembly from the drive shaft. Tighten the puller sufficiently tight and tap the end of the puller with a hammer. Continue tightening and tapping until the pinion breaks loose from the taper on the drive shaft.

#16. The pinion assembly has been removed from the drive shaft with the existing pre-load still intact.

#17. The Mitchell stub shaft is inserted into the pinion in place of the drive shaft. Torque the 15\16" hex nut to a nominal 100 foot-pounds.

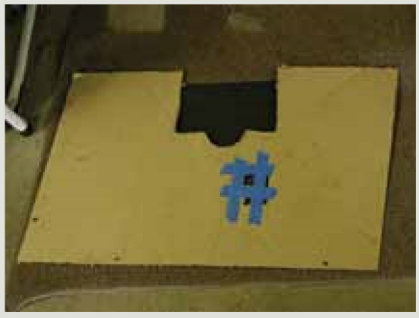
#18. The pinion gear assembly with the Mitchell stub shaft installed is re-inserted into the banjo using a tool made from a cut off torque tube. Tighten the six nuts evenly while rotating the stub shaft to engage the pinion gear with the ring gear. Continue tightening until the pinion assembly is fully seated.

#19. Close up view of installed pinion assembly and Mitchell stub shaft.



#20. Rear axle assembly with Mitchell stub shaft installed is ready for the overdrive assembly to be installed. Install the spline coupler on the end of the stub shaft splines before installing the overdrive unit.

#21. The Mitchell overdrive installation is complete and the rear axle assembly is ready to be installed back in the car.



#22. A slot will need to be cut in the floorboard to accommodate the Mitchell shifting lever. Make a cardboard template to accurately locate the positioning of the slot.

#23. The Mitchell shifter is located behind and to the right of the standard shifter. Shift it forward and you are in overdrive. Shift it aft and you are out of overdrive. The overdrive can be used in any gear and is particularly beneficial in second gear-overdrive when driving in mountainous terrain.

To facilitate installation of the rear axle assembly in the car make sure the Mitchell overdrive gearing is engaged. There is a neutral position. Move the Mitchell shifting lever into either gear position. This will allow a means to rotate the Mitchell input shaft for alignment with the splines of the U-joint.

Refer to the instructions in the Mitchell document supplied with the overdrive for installation and adjustment of the shifting linkage and routine maintenance and servicing.