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SAGINAW STYLE GEAR BOX ADJUSTMENT

1. All adjustments should be performed with **ZERO** preload on the steering box.

DISCONNECT THE STEERING LINKAGE FROM THE PITMAN ARM

2. At the top cap where the threaded portion of the sector shaft presents, break the nylon retaining nut loose. Turn the threaded bolt counter-clockwise by the Allen head 2 FULL TURNS to eliminate any possible drag between the two gears.
3. Locate the 2-inch jam ring at the input shaft end of the box. Remove jam nut. Under it are 2 holes on the adjuster cup for a spanner wrench.
4. To measure and adjust worm shaft bearing preload, you should:

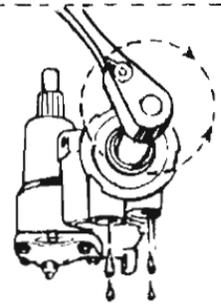
- a. Select the smallest 12-point socket that will slide over the splines of the worm shaft, and with a low reading, inch-pound torque wrench, measure the torque required to turn the worm shaft.

Tech Tip: If an excessive amount of slippage occurs between the socket and the shaft splines, a tighter fit can be obtained by wrapping a strip of cardboard around the shaft and forcing the socket over the shaft and cardboard.

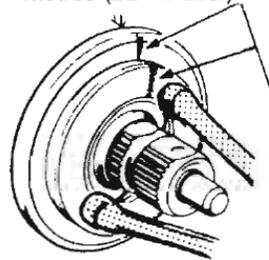
- b. Obtain the worm shaft bearing preload specification and compare it to your readings. If specifications are not available, a rule of thumb is 5 inch-pounds (0.5 Nm) of torque. NOTE: As a general rule, the average person can turn a worm shaft with a thumb and forefinger and detect turning resistance.

12. ADJUST THRUST BEARING PRELOAD

- A. Before adjusting bearing preload, rotate the stub shaft back and forth to drain all oil from gear.

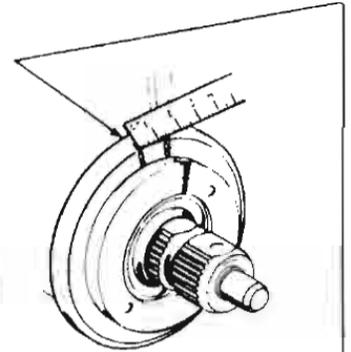


- B. Using spanner wrench J-7624, tighten adjuster plug until thrust bearing is firmly bottomed, 27 Newton Metres (22 Ft. Lbs.).



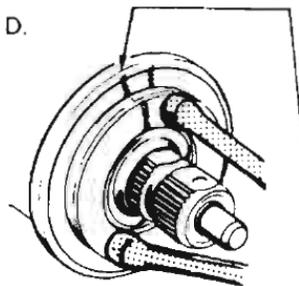
Mark housing and face of adjuster plug.

C.



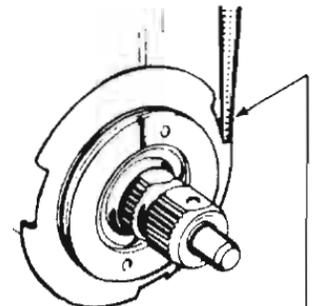
Measure back counterclockwise 13mm (1/2") and place a second mark on housing.

D.



Turn adjuster counterclockwise until mark on face of adjuster plug lines up with second mark on housing.

E.



Using punch in notch tighten lock nut securely. Hold adjuster plug to maintain alignment of the marks.



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- c. If an adjustment is required, loosen the lock nut for the adjuster plug and rotate the adjuster plug inward to increase preload or outward to reduce it. When the effort to turn the worm shaft matches the specifications, tighten the adjuster lock nut and double check the preload to ensure that it has not changed. **BE CAREFUL TO AVOID DAMAGING THE THRUST BEARINGS BY OVER TORQUING.**
- d. When complete, the input shaft may still move side to side, but as you turn the shaft under load there should be no trace of in and out movement.



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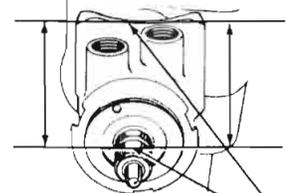
5. With the engine off, set the steering wheel at center or the tires straight ahead. On Saginaw boxes the flat spot on the input shaft will be facing up.
6. Tighten the Allen head until the teeth touch inside the box, approximately 1 ½ turns. As the teeth engage each other the Allen head will get harder to turn; do not confuse this with the initial breaking loose of the Loctite. When the procedure is complete, some of the threads of the sector shaft adjustment bolt will remain visible.
7. Manually manipulate the input shaft by lightly attaching a pair of vice grips to the input shaft or, if already connected, by turning the steering wheel. Turn it both directions back and forth across center. Simultaneously, slowly tighten the Allen head in 1/16" increments until a slight drag can be felt across the center.

TECH NOTE: A slight drag is very important to proper performance. Do not tighten to a drag so significant that it can be felt with the engine running. If done correctly, this indicates that the lash has been taken out at the teeth and that the sector shaft has been preloaded into the needle bearings, which will keep it from moving left to right at the pitman arm.

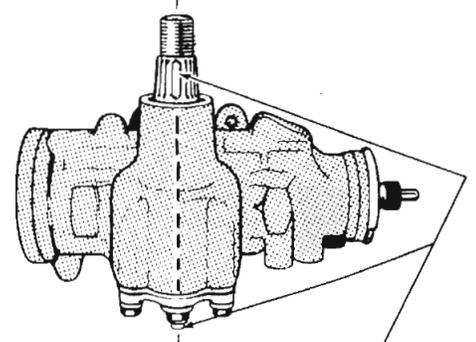
8. Re-tighten the input shaft jam nut and nylon locking nut to ensure that adjustments do not move

13. PITMAN SHAFT "OVER-CENTER" SECTOR ADJUSTMENT

A.



When gear is on center flat on stub shaft is normally on same side as, and parallel with, side cover.



The block tooth on the Pitman shaft is in line with the over-center preload adjuster.

B. Back off preload adjuster until it stops, then turn it in one full turn.



With gear at center of travel, check torque to turn stub shaft (reading #1).

C. Turn adjuster in until torque to turn stub shaft is 0.6 to 1.2 Newton Metres (6 to 10 in. Lbs.) more than reading #1.



Torque adjuster lock nut to 27 Newton Metres (20 Ft. Lbs.)

Prevent adjuster screw from turning while torquing lock nut.