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Saginaw Steering Box Rebuild

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REQUIRED TOOLS	MATERIALS (Check manual for types, amounts and applicability)	TIME
Needle Bearing \$11-15 Mopar Seal Rebuild Kit 4470365 or Saginaw Box Kit from HERE \$30-40 Power Steering Fluid (Use Gunk or Royal Purple recommended) \$12 Lucas Power Steering Stop Leak (Personal Preference) \$7	Pitman Arm Puller Brass Mallet Oil Pan/Funnel 18 MM Open End 13/16 Open End 5/8 Open End 9/16 Open End 3/16 Allen Set of MM Allens (If you have a Borgeson Shaft) Punch Set Socket Set(not required) Lock Tight Blue and Red	

By NJBT4.56

Misc. pics of parts and tools:



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Note: Box does not have to be removed from truck to replace lower seals, although it is much easier off the truck. By removing the box one does not have to deal with the fan shroud, can fully drain the box, and can replace the needle bearing along the sector shaft.

Wire your steering wheel to the seats to prevent it from turning. Your steering wheel can turn freely in any direction and ruin the air bag ribbon wire if you do not tie it down.

Disconnect the intermediate shaft. If have a Borgeson shaft you must loosen the allen(metric) on the locking slider in the middle of the shaft. You may have to use a punch and mallet to tap the shaft off the input shaft of the steering box.



Place a drip pan below the steering box and use a 18mm open end wrench or crows foot to loosen the high and low pressure lines coming from the steering pump.



Once loose pull the lines across the frame rail and let them drain the pump down into the drip pan. Now loosen the three bolts on the opposite side of the frame as the box to take the box down. Loosen two of them completely leaving one to hold the box firmly in place. **THE BOX IS HEAVY.** You may want to get a buddy to help you loosen the last bolt as you hold the box (almost 40 lbs with fluid.)



When dropping the box down turn it over to drain any excess fluid out of the hose line holes. Place the box upright in a vice using pipe clamp jaws if you have a set.



Place drip pan below sector shaft with box in vice and loosen the 4 bolts on the top plate. With all four bolts removed pull straight up on the plate to remove the plate and sector shaft. When you do this a lot of fluid will come out of the lower seal area.



Now the box should nearly be drained and you can place it on a bench or the floor to knock the seals and bearings out. If you have a stock Saginaw box with no aftermarket rebuild proceed to pull the first seal out of the bottom of the box with a pair of needle nose pliers. If you have an AGR box you will see a large solid brass seal. These are very hard to get out but not impossible. This rebuild was on an AGR and it took about 30 minutes to chisel the brass seal out. This seal is prone to cracking and is probably worse than the Chrysler seal. Below the first seal you will see a lock ring that you can pull out with a pick. If you have an AGR there will not be a lock ring but there will be a spring compression ring. This can be cut out with dikes or just plain beat to hell until it releases. Below the lock ring or compression ring you will see a large metal washer and the sector shaft seal. Leave the seal in place and remove it with the bearing. Now drive the bearing out.

If you have an AGR is here is what the removed seals and lock ring look like:





I use an impact socket that is just smaller than the outside bearing diameter. Hit it with a brass mallet or dead blow mallet from the top and drive it out towards the bottom. They usually will come out pretty easy. Take note of the orientation of the sector shaft seal. It will have a clear plastic ring on it that points down and a soft rubber section on the top. There may be a large metal washer on top of the clear plastic ring depending on your box. AGR's will not have the large metal washer.

Now begin reassembly. Here are the parts in the order they go in from left to right.



Bearing- Sector Shaft Seal-Large Washer-Lock Ring-Secondary Seal. Press the bearing in the opposite way it came out. Use a socket that is just smaller than the OD of the bearing and go slowly. Notice that the bearing has a lip on one end. This lip points toward the bottom of the box. The bearing has a positive seat. You will feel when it hits the bottom. Now lightly grease the inside of the box to help seat the sector shaft seal. Push the Seal in the bottom of the box with the plastic strip out or up. Now place the large washer on top of it to help drive it in. Do not strike the seal directly with out the washer on top. This will help keep the seal in tact. Now compress the lock ring and put it in place. After the lock ring is in place check if the metal washer below it is loose. If it is loose then drive the bearing(as if you were removing it) from the top towards the lock ring to take of the space. Should be less than 1 mm distance.





The last seal can now be put in place. This seal will sit with the indentation facing outwards and can be driven in by hand. Be careful to keep the seal straight. The sector shaft can be put right back in and the box can now be adjusted for play. Place the box in a vice and replace the 4 bolts on the top cap with a drop of blue lock tight on each one. To adjust the sector shaft play (what ruins seals) you must loosen the 5/8 nylock nut in the center of the top cap. The threaded bolt inside this nut will be a 3/16 allen head. To take play out of the shaft you will lower the sector shaft by tightening the center bolt. To detect play in the shaft I use a pair of vice grips where the pitman arm would connect.



You want to check for non-radial play by putting pressure on the sector shaft using the vice grips. This is just like backlash in a ring and pinion set. If you take all of the play out there will be no room for lubrication between the gear teeth. If you leave too much play in you will ruin the seals and needle bearing prematurely. Just remember that the center threaded bolt adjusts the amount of play and the outside nut locks it in place. If this is the first rebuild of the box then tighten in quarter turns and check the play after each. It will almost certainly need some tightening. It is not as hard as it sounds.

Now put the box back in the truck the opposite of taking it down. Use some red lock tight on the pitman arm nut being careful to line up the pitman arm the same way it came off. If you have a Borgeson shaft it may be difficult to realign the input shaft as it was before. If your steering is off by a few degrees you can re-clock the wheel by shortening or lengthening the draglink.

Fill the pump reservoir with some Lucas Stop Leak (personal preference) and about a half quart of fluid. Start the engine and quickly dump more fluid in as the box fills. Fill the reservoir to the desired level. Lift the front axle off the ground using some jack stands. Now have a friend run the steering from lock to lock about 75 times slowly to get all the air out of the box. While this is going on you can continue to adjust the play in the sector shaft under the truck.

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