

Borg Warner DG-200 front pump repair

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Since 1953 some Hudson cars have been equipped with the Borg Warner DG-200, 3 band automatic transmission. This transmission was used by Hudson as a replacement for the Hydramatic after the Hydramatic assembly plant was lost to fire. My 1954 Super Wasp has a DG200 installed.

When I bought my car, there was a leak between the torque converter housing and the transmission, which is a sign that the front pump is leaking. After consultation with other Hudson owners and reviewing the maintenance and repair manual, I decided I could repair the leak.

My experiences during that repair are written in this document. This was a unique experience for me. I had never attempted such a repair and I want to share what I've learned so far about repairing this transmission.

Before your attempt this repair I recommend that you collect the following documentation, parts and service support tools.

What you need to have prior doing the repair:

- The DG-200 service manual, a must have and your best friend to ease the repair process,
- The proper tools and devices, as you will need to remove the transmission from the vehicle in order to reach the front pump,
- The needed parts
- Time and patience, depending the state under your car (mine was clean, thus easier for me).

Phase one: transmission removal

Lift the vehicle and safely secure the vehicle, so you can work under it. Start by removing the drive shaft and anything that can be in the way as documented by the procedure found in the maintenance manual. Accomplishing the initial removals is

required to assure you will have sufficient clearance when removing the transmission from the vehicle.



Tip: Once the drive shaft out, store it straight on the ground with the ends lifted a bit, just to keep it intact and straight. Make sure that you have either taped the universal joint caps to the universal so that they do not accidentally fall off the joint.

Caution: I recommend that you have an assistant when removing the transmission. You will also need an appropriate lifting device that can be attached to the transmission so when the transmission decouples from the bell housing it is secure. Safety first at all time.

Once everything disconnected from the transmission and out of its way, drain your transmission.

Tip: draining the torque converter may not be necessary, but is good practice as it will be good for the transmission to remove the old fluid.

Next, the transmission is ready to be removed from the car. With a transmission jack under it and firmly attached, start by removing the 4 bolts that attach the transmission to the torque converter housing. Once done, simply pull the jack rearward to separate it from the housing.

Tip: If the transmission sticks to the housing, use a pry bar between the transmission and housing (rear end of oil pan flange and converter housing according to the manual) and carefully pry the transmission away from it.

From here, all you need to do is moving the transmission out and put it on a working bench. Again, it is good practice to use the two person lift or use a hoist as the transmission is quite heavy.

Tip: I recommend to work on the front pump in a warm, comfortable place (I live in Quebec, Canada, so it is cold outside in winter time).

Phase two: front pump disassembly and inspection

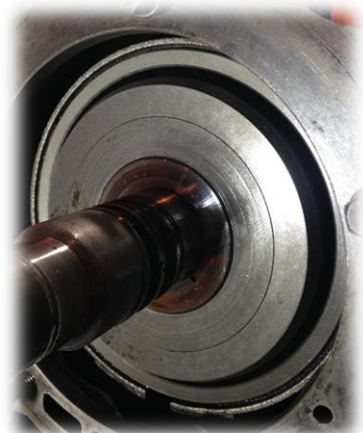


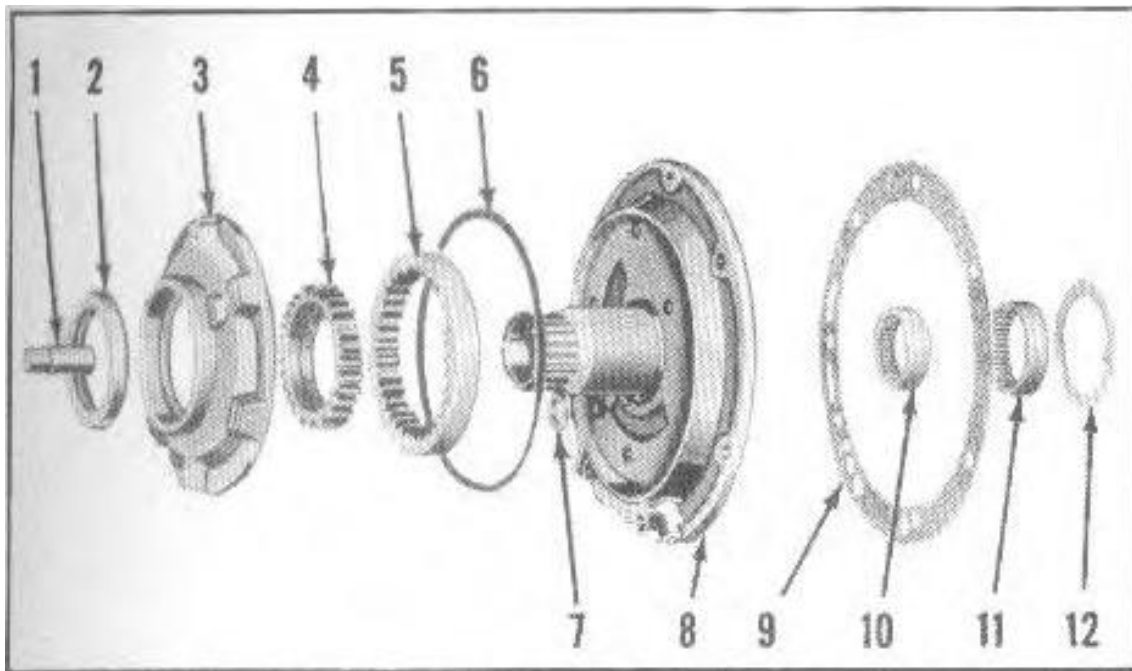
As seen on the picture above, the front pump assembly is located in the front of the transmission and is ready to be disassembled. At this stage the service manual will come handy as though not very complicated, there are procedures to respect in order to properly repair your transmission.

Tip: Since the DG transmissions were built and used by other auto manufacturers, one was Studebaker. People who specialize in Studebakers are familiar with the DG200 and may help with technical advice or parts. Don't be afraid to look for more technical information and procedures from the Studebaker Drivers Club. Ask them your questions on their forum, my experience was; they will be happy to help you out.



The first thing to do is to remove the front pump from the transmission case by simply removing the 7 cap screws. Don't forget to inspect the transmission case's mating surface for any possible wears and nicks. Once the front pump in your hand, disassemble the front pump by following the manual.

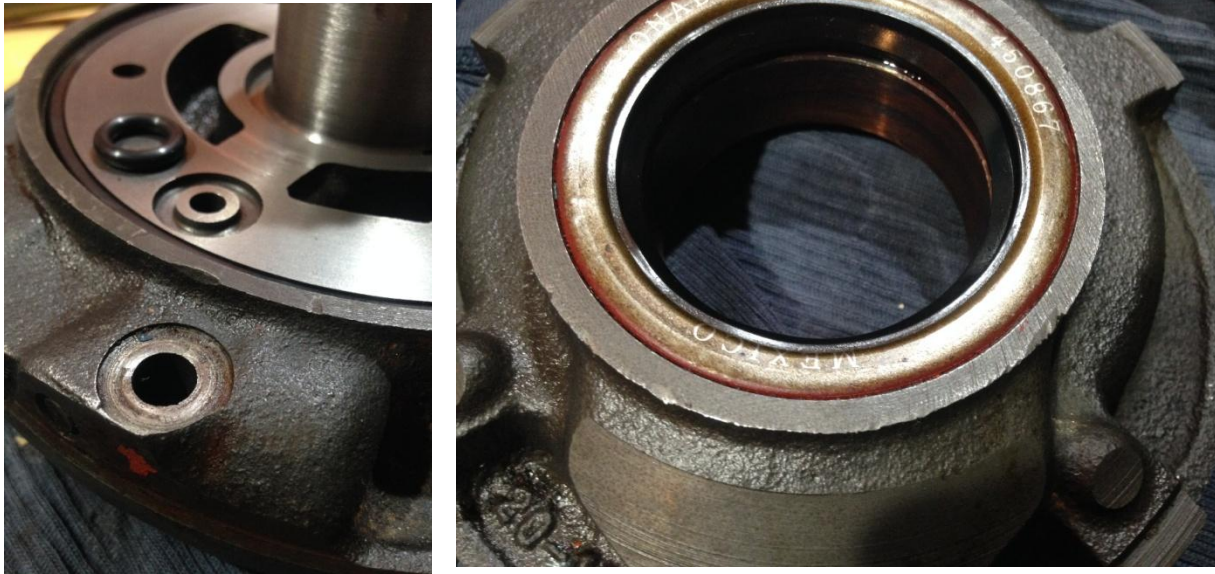


**LEGEND**

1. Main shaft Oil Transfer Tube	7. Front Pump "O" Ring (Small)
2. Front Pump Oil Seal	8. Front Pump Collector Ring
3. Front Pump Body	9. Collector Ring to Case Gasket
4. Front Pump Drive Gear	10. Collector Ring Bearing, Front
5. Front Pump Driven Gear	11. Collector Ring Bearing, Rear
6. Front Pump "O" Ring (Large)	12. Front Ring Gear Front Washer



For the front pump gears, mark them for proper reassembly mating before removing them. With the front pump disassembled, it is time to inspect it. Look for nicks and wears on the collector ring and the front pump body.



As seen on the picture, if the wears are located on the outside of the machined area of operation, there is no need of replacing them.

Tip: Feel free to inspect any other parts on your transmission like the reverse, low and forward servos cases for leaks. It is good to check for any other problems that may not be seen the first time.

Inspect the front pump gears for wears and replace them if necessary. Replace the two O-rings, the front pump seal and the collector ring to transmission case gasket.

The parts can be sourced from

- Small and large O-ring : General Bearing Service Inc. (try your local shops)
- Collector ring to transmission case gasket # GAS-S22: Fatsco Transmission Parts

Tip: I recommend finding your parts locally when possible, as it can save you time and money, giving you more time on the rebuild.

Inspect the front pump gears for wear and replace them if necessary. Replace the two O-rings, the front pump seal and the collector ring to transmission case gasket.

Here are the parts for the O-rings and gasket:

- Small and large O-ring : General Bearing Service Inc. (local shop)
- Collector ring to transmission case gasket # GAS-S22: Fatsco Transmission Parts

Tip: I recommend finding your parts locally when possible, as it can save you time and money, giving you more time on the rebuild.

Inspect the front pump seal and replace it is necessary.

Front pump seal:

- Front pump seal Timken #470898: General Bearing Service Inc. (local shop)



Once the parts gathered, it's time to reassemble the front pump by following the steps in the service manual and reinstall it onto the transmission.



When the reassembly is complete, the only thing remaining it to put the transmission back under the car.

I hope that this short review of the process I used to reseal my transmission front pump was helpful.

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