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IH: Oiling & Lubrication - Sub-03C

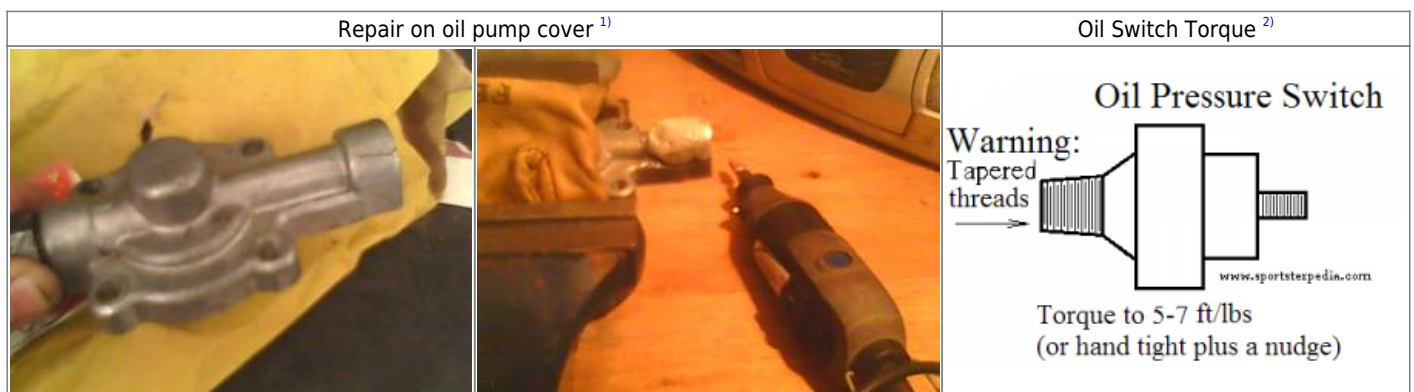
77-85 Oil Pump Damage and Repair

Cracks in Housing or Cover

This cover was cracked at the oil pressure switch end.

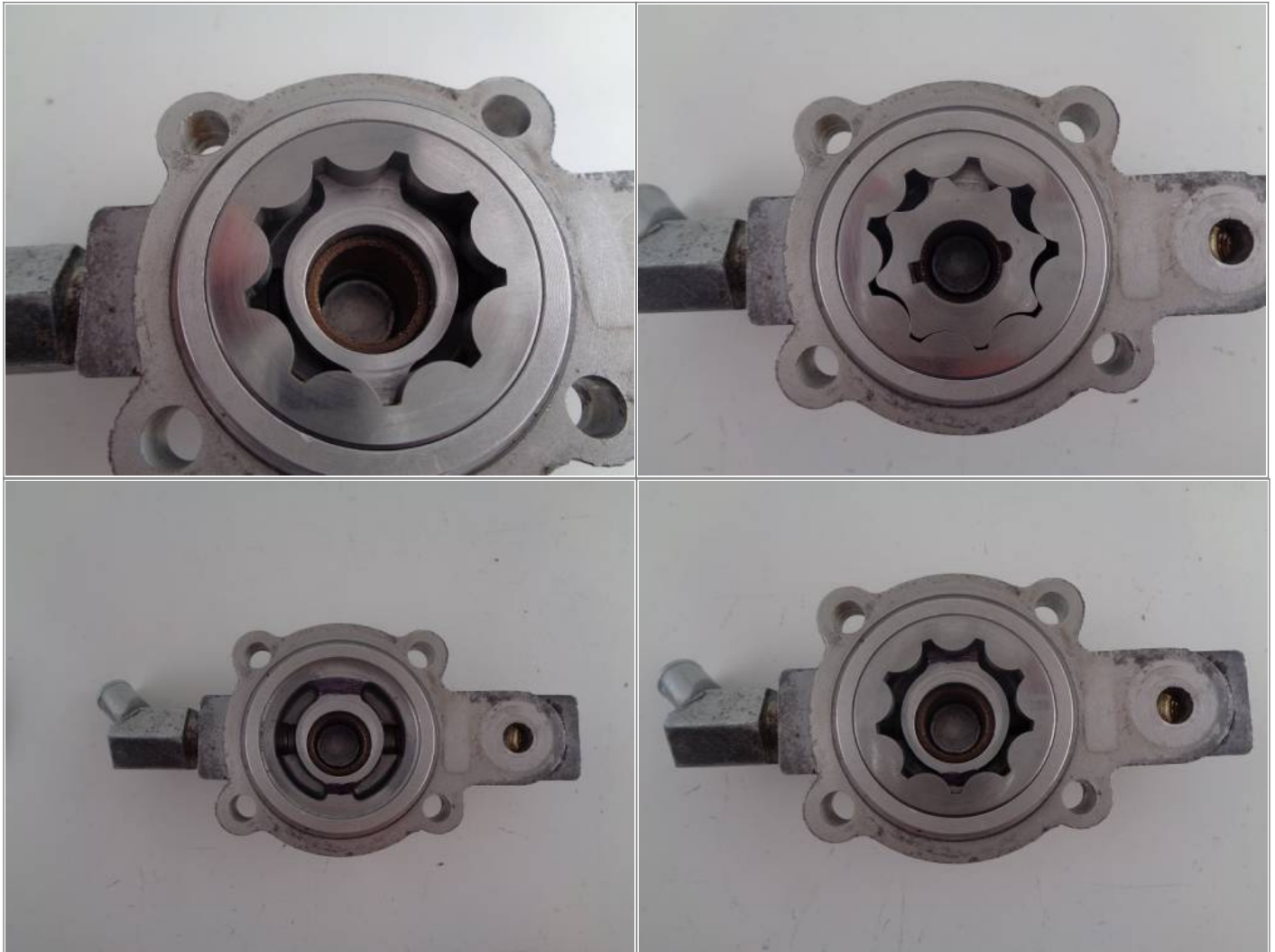
The crack was welded over and a Dremil tool was used to reshape the cover.

Due to warpage during welding, the threads need to be chased with a tap to straighten them back out.

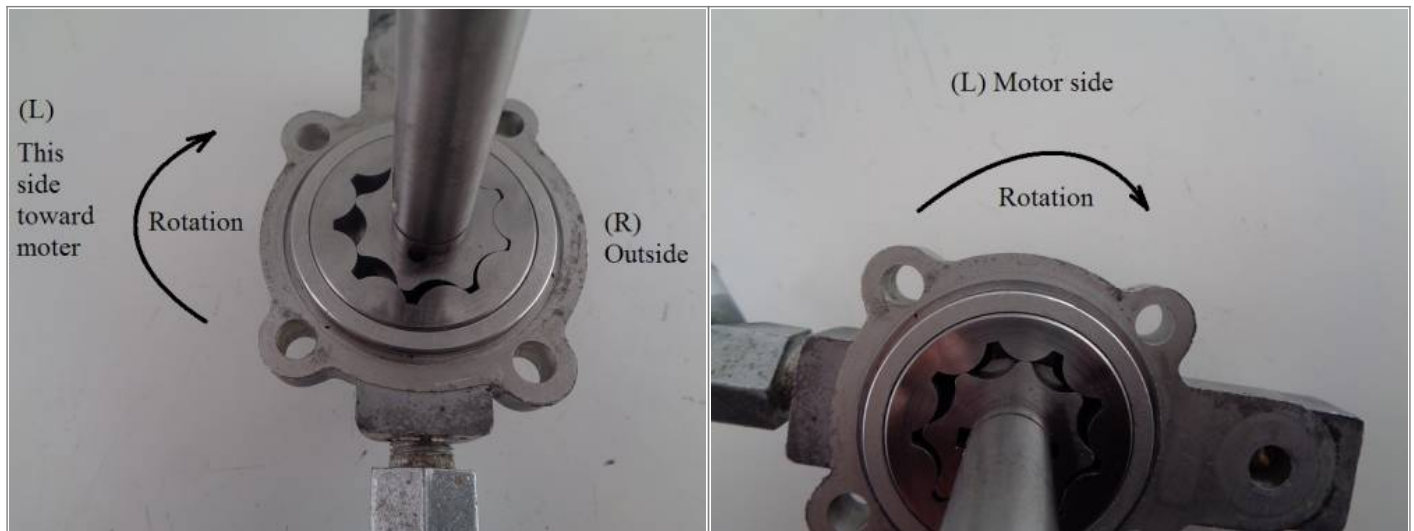


Scratches on Gerotors or Mating Surfaces

- Many used oil pumps have scratches on both the gerotors and pump surfaces that the gerotors ride on.
- But, there is one certain spot that seems to be scratched more times than others. ³⁾
 - It's on the larger of the two pads in the pump body and the cover seem to usually have more wear.
 - Sometimes, the small pad is scratched or damaged also but not always.
 - The gap between the inner and outer gerotors on both the feed and return sides tends to be scratched as in the pics below.
 - Debris caught between these two gears cannot slide over and fall to the other cavity and out of the pump.
 - It gets locked between the gears and ripped across the aluminum surface.



- In theory, no particles of any size should be able to spin around to the small pad due to the pressure generated by the spring washer and the gerotor spacing there.
- Also, any debris picked up from the source side cavity should drop down into the feed side cavity and out of the pump.
- The side toward the motor is where oil is transferred to and from the pump.
- The inner and outer gears come together on the other side (right side).
- This spacing relationship doesn't change between the motor side or the outside of the pump due to the offset gearshaft.
- But in reality, debris gets caught in or between the gears and gets dragged over the aluminum flats.
 - Some then find their way under the gerotors while the spring washer flexes from the stress.
 - The debris spins around under the gerotors and wears scratches in the flats (pads) or worse.

Gerotor rotation ⁴⁾Oil pump from an 83 model ⁵⁾Gearshaft pin broke off into this 77 model ⁶⁾

- There should be some reduced pressure because of the scratches.
- Pressure generated to the output cavity can squirt back to the input side through these scratches.
- How much pressure loss would depend on the width, depth, length of the scratches and oil viscosity.
- To make the pump inoperative or not make pressure (from the scratches alone);
 - The scratches would have to be proportional to the relative volume of all four gerotor reservoirs combined.
 - Then, the check valve would have to accept less pressure flow than the backpressure from the pump.
- The gerotor surface in the cover would have to be eat up pretty bad to make the pump completely ineffective.
- The pump would have less pressure loss with multi-weight or straight weight oil when cold than hot.

- They'll both flow faster when hot.

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¹⁾
photos by Farmer00-1 of the XLFORUM <http://xlforum.net/forums/showthread.php?t=554323>

²⁾
drawing by Hippysmack

³⁾
Hippysmack of the XLFORUM <http://xlforum.net/forums/showthread.php?t=2071153&page=6>

⁴⁾
photos by Hippysmack <http://xlforum.net/forums/showthread.php?t=2071153&page=6>

⁵⁾
photo by sc72 of the XLFORUM <http://xlforum.net/forums/showthread.php?t=1717592&page=15>

⁶⁾
photo by 77 iron of the XLFORUM <http://xlforum.net/forums/showthread.php?t=1831941&page=2>

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