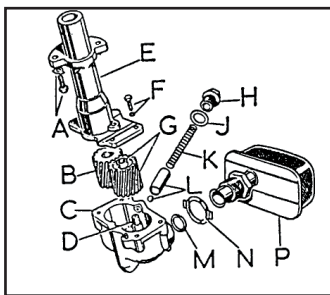




THE SPECIALISTS IN LAND ROVERS • USA

## Oil Pump Examination and Renovation Series IIA & III

- 1) Remove the oil pump. Undo the four securing bolts and detach the cover plate and driveshaft housing.
- 2) Lift out the two gears and unscrew the relief valve from the pump housing. Remove the valve spring, plunger and steel ball.
- 3) Clean all of the components in petrol and dry completely.
- 4) Refit the gears and measure the clearance between the top of the gears and the pump housing face. Also check the clearance between the gears and the pump body, and check the backlash between the gears themselves.
- 5) If the gear endfloat, clearance, or backlash dimensions are not within the specifications listed below, the best course of action is to replace the complete pump assembly with a new or reconditioned unit. Though it is possible to renew the gear bushes, it would require reaming and drilling- a job for a specialist only.
- 6) Check the relief valve ball for grooving or wear, and if either exist you must replace it. Examine the ball seating inside the pump body for similar signs of wear. The seat can be polished using a steel ball soldered to a length of tube, and using a very fine grinding paste. However, when in doubt, the most sensible solution is to replace the pump altogether.
- 7) Reassemble the pump noting that the drive gear fits into the pump body with the plain section of the bore as the top-most piece.



<b>Oil pump, early type</b>											
Type	...	...	...	...	...	...	...	...	...	...	Spur gear
Drive	...	...	...	...	...	...	...	...	...	...	Splined shaft from camshaft skew gear
Endfloat of gears	...	...	...	...	...	...	...	...	...	...	0.002 to 0.005 in (0.025 to 0.12 mm)
Radial clearance of gears	...	...	...	...	...	...	...	...	...	...	0.002 to 0.005 in (0.050 to 0.012 mm)
Backlash of gears	...	...	...	...	...	...	...	...	...	...	0.004 to 0.008 in (0.10 to 0.20 mm)
<b>Oil pump, late type</b>											
Type	...	...	...	...	...	...	...	...	...	...	Skew gear
Drive	...	...	...	...	...	...	...	...	...	...	Splined shaft from camshaft skew gear
<b>Endfloat of gears:</b>											
Steel gear	...	...	...	...	...	...	...	...	...	...	0.002 in (0.05 mm) to 0.005 in (0.12 mm)
Aluminum gear	...	...	...	...	...	...	...	...	...	...	0.003 in (0.07 mm) to 0.006 in (0.16 mm)
Radial clearance of gears	...	...	...	...	...	...	...	...	...	...	0.001 to 0.004 in (0.02 to 0.102 mm)
Backlash of gears	...	...	...	...	...	...	...	...	...	...	0.006 to 0.012 in (0.14 to 0.28 mm)
<b>Oil pressure, engine warm</b>											
2,000 rpm	...	...	...	...	...	...	...	...	...	...	45 to 65 lb/in <sup>2</sup> (3.16 to 4.57 kg/cm <sup>2</sup> )
<b>Oil pressure relief valve</b>											
Type	...	...	...	...	...	...	...	...	...	...	Non-adjustable
<b>Relief valve spring:</b>											
Free length	...	...	...	...	...	...	...	...	...	...	2.670 in (67.82 mm)
Compressed length at 5.7 lb (2.58 kg) load	...	...	...	...	...	...	...	...	...	...	2.45 in (61.23 mm)

Oil Pump Specifications

- |                                     |                                 |                 |
|-------------------------------------|---------------------------------|-----------------|
| A) Bolt, oil pump to cylinder block | F) Bolt, cover to body          | L) Relief valve |
| B) Rear drive gear                  | G) Idler gear and bush assembly | M) Sealing ring |
| C) Pump body                        | H) Threaded plug                | N) Lock washer  |
| D) Idler gear spindle               | J) Washer                       | P) Oil filter   |
| E) Pump cover and shaft housing     | K) Spring                       |                 |

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Poor		Fair		Good		Very Good		Excellent	
1	2	3	4	5	6	7	8	9	10

Ideas, Comments, or Corrections (please include specifics, such as page number, or step number):

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