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EVO: Engine Mechanicals - Sub-04S

Top End Oiling

Rocker Box Oiling

1991-1999 engines

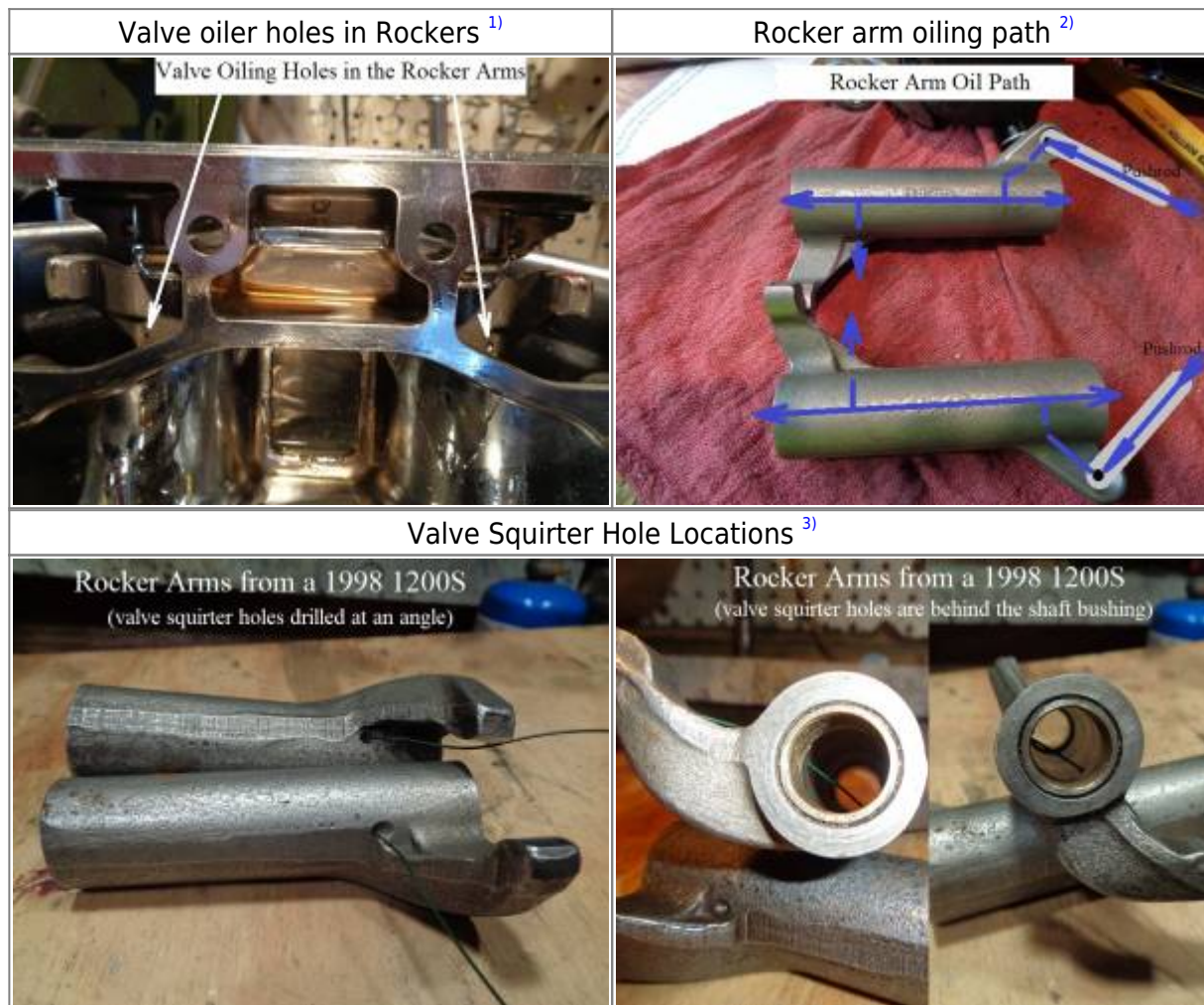
- Crankcase pressure (air and oil mist) is routed up the pushrod tubes (bypassing the falling oil from the rocker boxes) into the rocker box.
- Collected air pressure and oil mist in each rocker box is routed up into a sealed cavity in the lower portion of the box.
- This mixture passes up from underneath a rubber one-way valve (umbrella valve) sitting over the cavity inlet.
- The oil is designed to separate from the air by;
 - Hitting the underside of the umbrella valve and falling back into the sealed cavity in the middle rocker box.
 - From there it should drain back into the lower rocker box through a tiny hole behind the umbrella valve.
 - This tiny hole is in a recessed area behind the umbrella valve.
 - There is a certain amount of backpressure in the sealed cavity away from the air exit hole.
 - This backpressure should help push the oil into the tiny hole and back into the lower rocker box area to be carried back down to the lower end.
 - The upstroke of the pistons causes a vacuum to form in the system.
This vacuum is also pulled through the oil passage from the heads / rocker box.
(in theory, it should help pull oil through the drains in the heads to the bottom end.
- Air pressure is designed to continue up past the umbrella valve and exit a hole in each head on the intake valve side.
- Pressure escapes the head through the hollow bolts (one in each head) that hold the air cleaner mount.

2000 and Up engines

Rocker Arm / Valve Oiling

All

- Oil flows up the holes in the pushrods from the lifters and enters the rocker arms through a hole in the pushrod end of the arm.
- Oil is supplied to each valve stem and springs from the drilled holes in the underside of each rocker arm above them.
 - The holes are only on the valve side of each rocker arm.
- Oil is also forced through the clearance between the rocker arm shafts and bushings for lubrication there.



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photo by Hippysmack

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