

5.3 Vortec head removal

I documented every bolt and plug that I removed so that I would not forget to attach or connect anything. It worked. This is a check list, not an instructional guide. For proper instructions, refer to a service manual.

1. Drain coolant
2. Disconnect battery ground
3. Remove engine cover
4. Remove air plenum (8 mm socket)
5. Remove rear bracket (3× 10 mm bolt)
6. Throttle body:
 - a. remove 2 electrical harness wires (IAC and TP)
 - b. remove vacuum hose
 - c. remove TB (3×8 mm nuts)
 - d. remove 2 TB coolant hoses
7. Remove radiator plastic cover (7 × plastic plugs)
8. Remove radiator shroud (2 ×10 mm bolts plus 4 plastic plugs)
9. Remove fan

Now you can sit inside the engine and work!

10. Disconnect 2 electrical harnesses (MAP and knock sensors)
11. Remove MAF sensor (8 mm bolt)
12. Electrical harness (10 mm deep)
13. Alternator electrical harness
14. Battery bracket
15. Remove 8 coil pack electrical connectors
16. Remove spark plug wires (8)
17. Remove coil pack brackets both sides (2 × 5 × 10 mm deep), heater hose bracket
18. Disconnect coil pack main connector
19. Remove intake manifold bolts (10 × 8 mm)
20. Release fuel pressure, then disconnect fuel line quick disconnects (2).
21. Remove serpentine belt (15 mm)
22. Remove coolant pipes (2 × 10 mm)
23. Disconnect ECT (front left side head)
24. Remove plugs (8)
25. Remove valve covers

If reusing valve train parts, keep sorted

26. Remove rockets/rods (8 mm)
27. Strap steering wheel, disconnect lower steering shaft, set aside
28. Remove oil dipstick tube (15 mm)
29. Remove exhaust (15 mm)
30. Reconnect lower steering shaft
31. Remove passenger side head. Leave rear middle bolt in place. (It will not pull out, but it will come out with head)
32. Remove lifter guides (10 mm), lifters
33. Remove alternator (15 mm bolts, 15 mm nut) (no need to remove PS pump)
34. Remove ground at rear (13 mm)
35. Remove passenger side head. (leave rear middle bolt in place like driver side)
36. Remove lifter guides, lifters

Installation is essentially the reverse:

1. Clean all gasket surfaces. Gasket Clean works really well on all greasy surfaces, including valve covers.
2. Brake Clean works well on bolts.
3. Get the thread chasers for the head bolts.
4. To clean bolt holes after, fill with brake cleaner. Reduce the air pressure to your compressed air (30 psi or so), attach a hose to the end that will fit into the small bolt holes and blow out. Repeat once more, then blow until no more brake cleaner appears on your air hose as you blow clean.
5. I always torque things in two stages, just in case I mess up or my torque wrench messes up and doesn't click when it should.
6. Get an angle torque gauge for the head bolts. They're cheap, and they fit.
7. Get a 24" 1/2" ratchet for the head bolts.
8. Always clean and dry all bolts. All torques are DRY torques except for a few. And those that are not dry torques, the threads themselves are still dry. (The shoulders of the rocker bolts must be oiled, not the threads)
9. Do not reuse head bolts.
10. When cleaning block surfaces for the heads, not all the black staining would come out. However, the surface was very smooth without ridges. A combination of a good razor, quality wet/dry 250 grit sand paper followed with 600 grit got the surface adequately prepped. (If you have better tools for this, use them. I didn't. My head is sealed as far as I know.)
11. When cleaning the block, keep the exhaust pipe covered. I contaminated the O₂ sensors. They did recover, but as they are old and not responding as I think they should so I plan to replace them anyway.