Checklist for New or Potential Vixen Owners

by Dave Nicholas, Abbotsford, B.C., Canada, updated 2025-01-28

This check list is for TD (BMW M21 turbo-diesel) models, but it may apply to SE (V6 gas) model, except for engine and transmission modifications.

New, or potential, Vixen owners are usually excited to immediately take a ride. It makes sense to first make a thorough inspection.

If you've purchased a low-mileage Vixens, for instance, be aware that little use does not equate to trouble-free driving. Your vehicle is at least 20 years old, and, with some preventive maintenance, will provide you with trouble-free service.

After reading all of **Vixen Owner's Association** publications, "**Fox Prints**", the following is a list of preventive maintenance that I would strongly recommend. Towing bills can be very high, and these repairs may prevent that. My thanks to the many pioneer Vixen owners who wrote about many of these issues.

In my opinion, here are the major sources of problems for the Vixen TD:

Main Mechanical Considerations

❏ First gear being too high:

If you bought a Vixen and are wondering if it has the updated low first gear only, a quick driving test will confirm. (1st gear @ 15 mph = 3200 rpm, 2nd gear @ 30 mph = 3000 rpm)
If you have the same rpm for 1st gear, but a much higher rpm for 2nd gear, then you have the low 1st and 2nd gear upgrade.

❏ Overheating the engine:

Often caused by belts, hoses, or water pump failing and unnoticed by the driver, air in the cooling system, or overheating on hills.

❏ Electrical problems:

Often caused by poor grounds and the crimp-on connectors used. Should have been soldered.

❏ Drivability problems:

Numerous unqualified mechanics working on a vehicle that they are not familiar with what needs to be done. Find a local mechanic who has worked on VW diesels and he should be able to maintain the diesel.

❏ Recall problems that were possibly not corrected.

❏ Rear frame brace:

This should have been done, but it goes over the rear cross-member to prevent cracking of welds. If you are careful, this brace can be under the ski locker and does not need to be cut into the ski locker as many were done.

❏ Steering box reinforcement:

Check to make sure you have a molded piece of sheet metal behind the steering box, as this was the reinforcement added in a recall that not all Vixens may have received.

❏ Coolant tank hose re-plumbing to prevent air locks to the Webasto. The correct plumbing is in each Vixen repair manual.

❏ INSTALL WARNING BUZZER FOR OVER HEATING AND LOSS OF OIL SEE HOW TO SECTION
Make sure you have the BMW service training manual, as it describes in great detail how to do most maintenance items and also major repairs. This was the manual they used to train BMW mechanics.

If you can do these yourself, the cost is about $500. If not, set aside at least $2,000.

Essential Running Gear Maintenance

❏ Lubricate all grease fittings, note the fitting underneath the steering box. Check for any play. There are a total of 10. (Ball joints upper and lower (4 total), drag link (2), Tie rods (2), Bell crank (1), Bottom of steering box (1).

❏ Check all fluid levels:

The Renault transmission is critical as the 5th gear will not receive any lubrication if the fluid is low. The check plug is on the passenger side of the Vixen. Check the slip pins on the axles for leakage. The splits should be opposite each other and filled with silicone before reinstalling. Some have also installed silicone on the splines when reinstalling the axles. A small pump, or suction gun will supply needed fluid to the tranny. Top up and remove and let any surplus run out the hole.

❏ Repack front wheel bearings. Make sure to use wheel bearing grease for disc brakes.

❏ Check rear axle flanges for any cracks. Remove rear drums and inspect. Also check wear on rear tires for alignment. Bad alignment may be causing the flanges to break.

❏ Wheel checks:

Replace rubber bushings on the Top A arms. Parts available from GM. These bushing go oblong and prevent proper wheel alignment from the weight of the Vixen. Not dependent on miles, but just on age, from the weight sitting on it.

Check wheel alignment with full water tank, and six bags of cement in front, to duplicate driver and passenger weight. (Return for refund to Home Depot when finished!) Ensure all tie rods, ball joints, etc., are in good shape.

Check all tires for wear, and aging and replace as needed:
If you do not have the lower gear transmission. you may want to consider 2:15X75X15 Goodyear Wrangler HT that have a weight rating in excess of 2,100 lbs and are lower in height than a 2:35 but actually a little wider. This will lower your final gearing ratio, and make a noticeable difference. I am using these and they have stood up excellent.

Many Vixen owners have installed GM Rally wheels with the small square holes. These wheels look great and fit, but have a weight rating of only 1,500 lbs per wheel. Not the same as your factory wheel. The weight is usually stamped inside the wheel. If you have the large metal hubcaps you will probably have the stock wheels.

Check underneath the front wheel wells on the condition of your metal lines that move coolant from the motor to the heater core up front. If they are rusty, remove and replace with good quality heater hose. Most motor homes use heater hose and not pipes.

Replace front pads, if needed, and service calipers. Make sure to grease the slide with silicone grease. Check brake hoses for rubbing. If you have a pull or a dragging caliper you may need to replace the rubber hose lines as they collapse from the inside, restricting the flow of pressure when the brake is released, causing the brake to pull.

❏ Rear brakes:

Make sure to pull back the rubbers on the wheel cylinders to check for leaks and replace. The brake lines have a 90-degree bend and may need to be heated with a torch and then WD 40 to release, to prevent the brake line from bending with the nut. Easy to do in a shop, but not so easy to do beside the highway!

❏ Check the condition of the large metal plates underneath your vehicle. You may find screws have fallen out and the plates are lose creating an unsafe situation if one ever came off.

❏ Make sure that you have the rear frame cross-member update.

❏ Make sure you have the steering box reinforcement plate added.

Also make sure that the bolts at the back of the steering box have not started to pull through.

❏ Timing belt:

Check the timing belt for age and mileage. Replace as per instructions in the manual. Use both pins and cam lock to ensure it is done properly. Check pump timing, as it can result in a hotter engine as well. More fuel results in more heat. Always replace the tensioner, and the plastic bushing it slides into, when doing a timing belt. Check cam shaft seal, intermediate shaft seal and crankshaft seal for leakage and replace if needed. Any oil on the belt may cause it to fail.

DO NOT ATTEMPT TO CHANGE A TIMING BELT WITHOUT THE TOOLS.
Always crank the motor over by hand two complete cycles to make sure the valves are not hitting.

❏ Replace water pump. It is easy to do at home, but on the road could be very difficult to do. If it fails, it will cause overheating and a warped or cracked head.

❏ Check all camshaft and crankshaft seals and replace as needed.

❏ Adjust the valves exactly to specs. Critical.

❏ Check glow plugs and replace with Bosch or other German brand. Usually the green light for start will not work if one glow plug is out. To isolate, disconnect the glow plug module on the passenger side engine compartment and use an ohm meter to check for continuity or a test light hooked up to 12 volts and each contact should provide a ground and your light should come on.

❏ Replace the fuel filter:

You may need a large filter remover tool if yours is on tight. I have been using a 1980 VW diesel filter as it is smaller, much easier to replace and available anywhere. Our fuel is excellent and many have used this filter for hundred of thousands of miles.

❏ Replace the oil filter:

Dealer item comes with new “O” ring and two copper washers for drain plug and filter drain plug. Use a good quality oil (Delo or Shell Rotella). If you change to synthetics, you may find leaks occurring, as synthetic

molecules are linked differently than regular oil. Most mechanics will not recommend synthetics in an engine that has not always run synthetics.

❏ Replace all hoses and belts on the engine. Use gold brand Dayco, or other premium brand. Keep your old ones as spares when traveling. Many of these hoses will need to be ordered in, which can be a costly repair when traveling if you are stranded somewhere.

❏ Add diesel conditioner:

Standyne is recommended by most diesel repair shops.

❏ If manual fan, check the bearings for wear, and the belt also. You may want to remove and install an electric fan from a Ford Taurus.

❏ Check all grounds are connected and clean.

❏ Lubricate shifter cables:

Remove cables at the engine, slide a slightly bigger hose over, and then a funnel into the hose, and fill with 0/30 weight synthetic oil. Over night, the oil will seep through to the front shifter. (If really stiff, use WD40 first as a cleaner) Install suitable towels to prevent a mess at the front shifter. You may wish to take the sharp bend out underneath to help with easier shifting.

❏ Check the clutch slave cylinder carefully for leakage. Flush out line with Isopropyl alcohol and use DOT #5 Silicone. Probably worth putting in a new one from Specialized. The original will fail due to moisture in the fluid and leave you stranded.

❏ Remove driver side rear cover and the electric air conditioning fan, and check condition of oil hoses on oil cooler. Slide a gear clamp on each fitting to prevent leakage. Replace the hose as required. Check they are not rubbing where they go through the fiberglass/frame. You may want to add something to prevent wear. I used a larger hose and wrapped it around the oil lines.

❏ Radiator care:

Remove radiator. Have it checked out by radiator shop. Replace if needed.

Many use a dimple radiator to slow water down for better cooling. Wally Watts discovered most of the water runs down the inside of the radiator next to the frame. He had a plate soldered into the top tank to force water to the outside of the radiator. This was a piece of metal about 2/3 of the way down the inlet, and about 1/2 way across the tank. Now 2/3 of the coolant must go to the outside.

❏ Install an angled piece of sheet metal to the rear cross member to direct additional air to engine compartment.,

❏ Install a new thermostat:

Many use the 182 degree thermostat. Use only Bosch as it has a bleeder valve on it which helps to rid the system of air.

❏ Install a "T" into the water line going to the radiator. A radiator shop can make one up that has a 1.75 inch openings with a rad cap on the top. When this is installed you can fill your vixen up from underneath the bed area in a few minutes, without any air in the system. Skip Hasket’s recommendation really makes it easy.

❏ Computer:

To check it is running, turn the key on, but do not start the motor. Listen for buzzing at the fuel pump at the back. If no buzzing, replace the computer.

❏ System pressure test:

Test for a period of time to make sure you have no leaks. Have the pressure cap tested also.

❏ Install an additional bottle/tank to provide a reservoir when the original BMW tank overflows. When it cools it will suck back in.

❏ Check the metal water lines that run coolant to the front of the Vixen, particularly behind the front two wheels, as they are subject to corrosion and can have pinhole leaks. If they are rusty, they can be cut out and replaced with high quality heater hose. (Silicone is recommended)

❏ If you are in a mountainous region or have not been able to cure overheating with the above maintenance you may wish to consider installing an additional radiator on the other side of the Vixen. For 1986 this is fairly easy. For 1987 TD's the inter-cooler is where the radiator will need to go. You may wish to replace the inter-cooler with a radiator. The hoses for the inter-cooler cross over the hot engine and may not actually produce any reduction in temperatures due to the routing of the hoses.

Essential Coach Maintenance

❏ Check all grounds.

❏ Check coach batteries and condition of battery supports. Replace with 6-volt golf cart batteries. Hook up in series. 6 volt have fewer cells and there the cells are larger with larger plates. They can be discharged and recharged more times than heavy duty 12 volt batteries.

❏ Install ground on the temperature gauge to give accurate readings, and prevent fluctuation when the lights are turned on.

❏ Install buzzers on the temperature gauge and the oil pressure gauge. If you throw a water pump belt or lose a hose, you will not otherwise know until your engine seizes.

❏ Install spray system on radiator. Plumb it into your fresh water tank. A solenoid is used to provide water flow to small sprayers attached on the radiator to spray in front of the radiator. This can lower temps by 10 degrees on long climbs. Be aware that if you run hard water it may plug up your radiator.

Optional Exterior Modifications

❏ Install side Lexan scoops (JL Plastics carries these units – 604-853-8222). This will cool your Vixen better, as well as allowing you to drive it even if the fan is inoperative. Put one on the drivers side as this is the only air flowing to the oil cooler as factory systems will only have air flow when the air conditioner is running.

❏ Replace sheet metal bumpers with 2x6 channel to provide far more protection and may avoid you been stranded with a minor accident. Minor bending and the cover will slide right over. The stock bumper is sheet metal with a large piece of foam in front. Little protection.

❏ Install a radiator on the passenger side for additional reserve cooling. Hook up a small utility trailer and watch how quickly your gauge will move, indicating that the current system is marginal. One overheat situation can warp

a head and cause thousands of dollars worth of repairs. A stock 524td, or Lincoln, diesel had a larger radiator, with no restriction that the side skirts have.

Optional Coach Modifications

❏ Install a burglar alarm. Wire it to the wire that goes to fuel pump. The vehicle will still crank over but not start, hopefully fooling a thief who will not be expecting an alarm.

❏ Install Plexiglass shelf in medicine cabinet to prevent articles from falling out when the door is open. Also, modify the plumbing below the bathroom sink, and then install a shelf to allow for storage below the bathroom sink.

❏ Hide a set of keys on the outside your vehicle.

❏ Install 2x2 onto the gas pedal. This gives a proper angle for driving. You can just tape one on to try and you will see the difference.

❏ Remove the refrigerator wiring cover plate to see if it is not plugged into 110 volt, but always runs on 12 volt. Many have ran a 110 volt wire back from the junction coming in, or the fuse box, and installed a 110 volt plug behind the refrigerator. The fridge runs better when plugged in and takes some strain off the converter.

❏ Remove the Webasto heater, and relocate it 180 degrees from its original place. Some minor hose work will need to be changed. This allows you easy access to your Webasto glow plug and wick.

❏ Weatherproof your front compartment by blocking off some of the vents in the hood and draining off water in the ledge below by installing a drain tube.

❏ Install door sweep material on the ski locker to waterproof and dust-proof this area. some have used the black plumbers insulation use to wrap around pipes. Inexpensive and when split slides over the fiberglass lip of the ski locker.

❏ Replace the front springs with 3/4 ton GM springs and the rear springs with the heavier springs available from Specialized. Replace air shocks with KYB gas filled shocks. You will not believe the difference in handling.

❏ Remove the metal hubcaps and replace with Walmart plastic ones. If the rear one ever comes off it will destroy your rear panel at great cost for obtaining a new one. $12.44 for four hubcaps and they look great!

❏ Check your passenger and drivers window sliders in the kitchen area. Many windows were installed with large dry screws that went too deep and are visible in the vertical track of the window. When the window is closed the edge of the glass strikes the screws and may chip the glass causing the window to break. remove and install shorter screws on the vertical track.

❏ Install a plastic stick on rain molding above the drivers door to prevent water from running off the edge of the roof and into the Vixen, through the top of the door. Some have added a metal rain or drip molding from early 1980s GMC pickup.

The VOA is a marvelous source of information, that when you join will support you in any way possible.