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RX-7 Reliability Modifications

By Rob Robinette

Want to keep your RX-7 alive and healthy? These are some well known tips for keeping your car happy. Excess heat in the engine compartment is a common problem with the 3rd gen RX and anything you can do to keep it down will help. I usually pop my hood open when I can after a hard drive to help dissipate engine heat. The RX-7 also has a low coolant warning buzzer. If it comes on for any reason, pull over and shut down the engine as soon as possible to prevent engine damage. Don't try to make it to the nearest gas station to add water. You'll regret it later when your mechanic quotes the cost of an engine rebuild. If you are researching the purchase of a used 3rd gen RX-7 see the [Buying a Used RX-7 How To](#).

Preventive Maintenance

Replace Transmission and Differential Fluid - Put synthetic fluids by Red Line or Neo in them.

Replace the Oil and Filter at 2,000 Mile Intervals - The oil in the oil cooler lines doesn't get flushed during a change so change your oil more often. This is especially important for modified cars running high boost because of more blow-by into the oil pan.

Flush the Coolant System - Use distilled water and high quality anti-freeze. See [Coolant System Flush How To](#).

Replace the Fuel Filter - Every 15,000 miles. If it clogs it can cause lean running at high power which leads to detonation and engine damage. See the [Fuel Filter Replace How To](#).

Minimize Wheel Hop - Wheel hop can occur in the RX-7 when you spin the rear tires. It puts a tremendous strain on the entire drive train, especially the differential's output shafts. If you encounter wheel hop get out of the gas. You can minimize it by lowering the air pressure in the rear tires, down to around 18 psi for full up drag race launches. There are also "launch kits" available that modify the rear suspension to reduce or eliminate wheel hop.

Reliability Mods For All Cars

Replace Pre-Catalytic Converter (pre-cat) With Down Pipe - The pre-catalytic converter is attached to the turbos. It tends to clog up and hold excess heat in the turbos and engine compartment. It can also break up and clog/destroy the main catalytic converter leading to failed emission tests and costly repairs.

Install a Boost Gauge - You need one to monitor the health of the turbo control system. The RX-7 has a tendency to blow vacuum hoses lose and cause the control system to malfunction. With a boost gauge you can verify a normal boost pattern.

Replace/Eliminate the Air Separation Tank (AST) - It's made of plastic and has a tendency to crack and dump all your coolant causing overheating and engine damage. There are several after-market metal tanks available for around \$150. You can also just eliminate the tank for around \$50, see the [AST Elimination How To](#).

Replace Vacuum Hoses - They bake in the hot engine compartment, become brittle, crack or come loose and cause boost control problems. See [Vacuum Hose Replacement How To](#).

[Modify the Stock Air Box](#) - Prevents the intake from pulling hot air backwards through the intercooler which can lead to detonation and engine damage.

Upgrade the Front Anti-Roll Bar Mount - The stock mount tends to crack. Several after-market mount reinforcers are available. This is especially important if you upgrade the stock anti-roll bar, race or Autocross.

Replace Rubber Intake Hose Couplers - The rubber couplers between the Y-pipe and the crossover intake tube crack and leak. Replace it with silicone hose couplers, or better yet [replace the Y-pipe and crossover tube](#) with the upgraded Japanese RX-7 part.

[Disable the Exhaust Gas Recirculation Valve](#) - If it sticks open you'll have to replace it, disable it and it will stay closed.

Clean and Lube the Antenna - The antenna retraction mechanism in the 3rd gen RX-7 fails at a pretty high rate. You can delay its failure by cleaning and lubing it while its extended. I used WD-40 to clean it and then wiped it down with some light 3M oil (mine hasn't failed yet).

Reliability Mods For Modified Cars

Install an Air/Fuel Gauge - As you modify your engine it will run leaner. If it gets too lean, detonation can occur which damages the rotor's apex seals. A complete engine rebuild is required to replace the apex seals. Install an A/F gauge so you can monitor how lean/rich your engine is running. AutoMeter has a nice 20 LED gauge for \$50.

Install a Water Temperature Gauge - The stock water temp gauge does not work well enough to monitor the engine's temperature. The gauge will show normal temperature until it is too late. Overheating the RX-7 can be fatal for the engine because the side seals can be damaged by excessive heat. The damaged seals allow coolant to pass into the combustion chambers. A total engine rebuild is necessary to repair the seals.

Install an After-Market Knock Sensor - If detonation begins to occur, an upgraded knock sensor can retard your timing and prevent apex seal damage. See <http://www.safeguard.bizland.com> for J&S's knock sensor.

Upgrade the Radiator - A modified car puts heavier demands on the cooling system. If your after-market water temperature gauge shows high temperatures, upgrade the radiator. See the [Install Racing Radiator How To](#).

Upgrade the Intercooler - The stock intercooler is woefully inadequate. If you want to increase boost above stock levels you need to improve air charge cooling. Inadequate cooling can lead to detonation and apex seal damage.

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