Candid Camry

Toyota has earned a reputation for building reliable cars. You'll go broke waiting for a Camry to arrive at your shop behind a tow truck. They do require routine maintenance, however. Better than seven years worth of Camrys already on the road add up to some ripe service opportunities for an import repair specialist.

Preventive maintenance is becoming something of a lost art in today's self-service world. Even if you have a Camry in your shop for an oil and filter change, it never hurts to give it a quick going over. Your customer will thank you if you spot a problem before it strands him on a rainy night. The extra labor won't hurt your bottom line either.

The odometer on the 1984 Camry we used for this

article had rolled over 100,000, and the car showed few signs of tiring. It didn't make it that far by being ignored, however. The owner wasn't your typical gas-and-go customer. He knew the value of regular preventive maintenance.

Keep Your Eyes Peeled

Spotting trouble before it arrives is much easier if you know what to look for. Camrys have a few quirks (just a few) that we'll detail here and in our photo captions.

If you're struggling with a Camry that has brake pulsation problems, refinishing the drums and rotors will provide a temporary fix at best. Toyota went to great lengths (and considerable expense) to correct brake pulsation problems on both early and late model Camrys. The whole program included replacing the rotors, drums, calipers, pads, hardware, hubs, bearings, and steering shaft with upgraded parts. Ask the customer whether this work has already been done before attempting to correct a problem Toyota might pay for.

Camrys that live in snow states are weak in the exhaust system department. Rear exhaust sections can disappear quickly. The front pipe may also rust out. Toyota recently started a lifetime warranty on Camry exhaust systems.

Toyota recommends a timing belt replacement at 60,000 miles. This is a reasonable figure on engines that receive regular maintenance. Sludged-up, no maintenance engines will wear out timing belts, distributor driven gears, and camshaft drive gears at a faster than normal pace.

For a quick diagnosis of the timing belt and distributor gears, disable the ignition and remove the IIA distributor cap. Remove the timing belt cover inspection plug, then crank the engine. If the camshaft pulley doesn't turn, the belt has gone south. The sound of the engine while cranking will usually tip you off. If the camshaft pulley turns but the rotor doesn't, the distributor and camshaft gears have bought the farm.

The shim-style valve adjusters used on the newer 3S-FE twin cam engine do a good job of maintaining proper valve clearance, but extra clearance may develop if the cam lobes wear valleys in the adjustment shims. Replacing the worn shim or shims with new ones of the original thickness will usually bring the clearance back to specifications. Refer to the October 1989 *Import Service* for Toyota shim-style valve adjustment procedures.

Camry's Family Tree

The Camry has gone through some changes since it was introduced in the middle of 1983. The first generation Camry was available with a turbo diesel engine. A new twin cam engine and restyled body followed in 1987. Then came a station wagon, All Trac four wheel drive, and a V-6 engine option. We can't cover every Camry descendant in a single maintenance article. So we'll concentrate on the '84 Camry and point out important service differences between early and late Camrys as we go along.

—By Bob Krcal

MAINTENANCE INFORMATION CHART

FLUID CAPACITIES AND RECOMMENDED LUBRICANTS

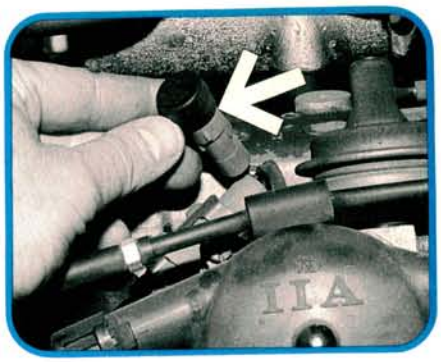
Crankcase—API Classification SF or SF/CC multigrade
2S-E Engine Drain and Refill
With Filter: 4.0 liters (4.2 quarts)
Without Filter: 3.6 liters (3.8 quarts)
3S-FE Engine Drain and Refill
With Filter: 3.9 liters (4.1 quarts)
Without Filter: 3.5 liters (3.7 quarts)
Manual Transaxle—Dexron II ATF
Fluid Capacity: 2.6 liters (2.7 quarts)
Automatic Transaxle—Dexron II ATF
Fluid Capacity:
Dry Fill—6.0 liters (6.3 quarts)
Drain and Refill—up to 2.4 liters (2.5 quarts)
Differential (with automatic transmission)—Dexron II ATF
Fluid Capacity:
1.95 liters (2.1 quarts)
Cooling System-Ethylene-Glycol, 50 percent concentration.
Fluid Capacity:
2S-E Engine: 7.0 liters (7.4 quarts) with heater
2S-FE Engine With Manual Transmission: 6.4 liters (6.8 quarts)
2S-FE Engine Without Manual Transmission: 6.3 liters (6.7 quarts)
Brake Fluid—must conform to DOT 3 or SAE J1703
Power Steering—Dexron II ATF

SERVICE SPECIFICATIONS

Spark Plug Type and Gap
2S-E Engine
Nippondenso W16EXR-U11: 1.1 mm (0.043 in)
NGK BPR5EA-L11: 1.1 mm (0.043 in)
NGK BPR5EY11: 1.11 mm (0.043 in)
3S-FE Engine
Nippondenso Q16R-U11: 1.1 mm (0.043 in)
NGK BCPR5EY11: 1.1 mm (0.043 in)
Valve Clearances (3S-FE Engine)
Intake: 0.19-0.29 mm (0.007-0.011 in)
Exhaust: 0.28-0.38 mm (0.011-0.015 in)
Drive Belt Tension Using Borroughs BT-33-73F Belt Tension Gauge
2S-E and 3S-FE Engines (used belt specifications)
Crank/Power Steering Pump: 80 ± 20 lb
A/C Compressor and Alternator (with A/C): 130 ± 10 lb
Crank/Alternator (without A/C): 95 ± 20 lb

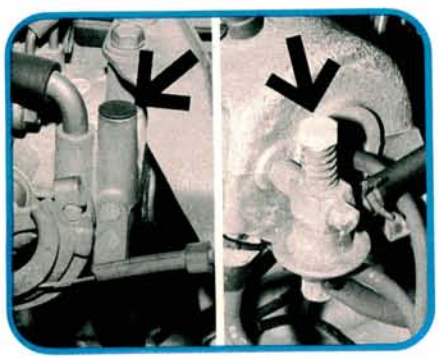
1

Electronic ignition, fuel injection, and hydraulic valve lifters take most of the meaning out of the words "tune up." All four spark plugs are easy to reach at the front of the 2S-E engine. Toyota's Integrated Ignition Assembly (IIA) distributor (arrow) is driven off the center of the camshaft.



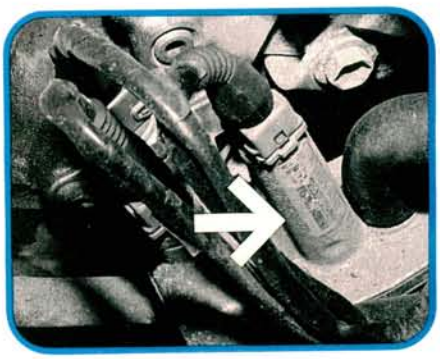
2

The green connector (arrow) at the base of the distributor gives an RPM signal for idle speed adjustments. Make sure your tachometer is compatible with Toyota's IIA. Refer to the December 1989 *Import Service* for detailed information on diagnosing Toyota IIA distributors.



3

Idle speed adjustment is under this black rubber cap in the throttle housing (arrow left photo). Don't confuse it with the throttle stop adjustment. Fast idle speed adjustment for air conditioning operation is at the other end of the intake manifold (arrow right photo).

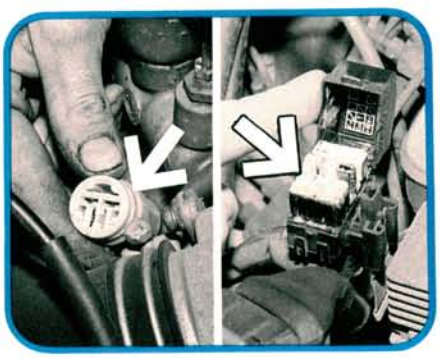


4

A stuck idle air bypass valve (arrow) can cost the Camry its fast idle during engine warm-up. Bypass valves from Aisin and Nippondenso (different connector colors and part number labels) have been used on the Camry. Always replace a defective valve with one from the original manufacturer.

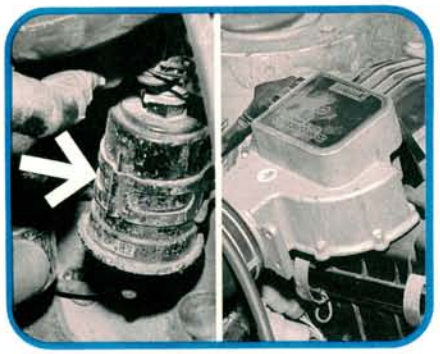
5

Loosen the clamp, then pull the inlet hose off the throttle housing. A deposit buildup on the inside of the housing can cause the throttle to either stick open or bind. A heavy buildup usually means PCV or blow-by problems. Clean out the housing with carburetor cleaner, then lube the throttle bushings.



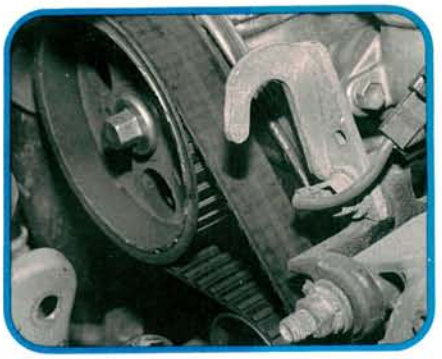
6

Stored trouble codes are retrieved from the ECU by jumpering this diagnostic connector (left photo), below the air flow meter ducting. The ECU blinks stored trouble codes on a dash-mounted check engine light. Later Camrys (right photo) use a more sophisticated self-diagnostic system and connector.



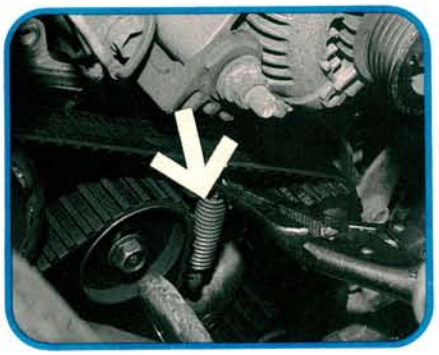
7

The fuel and air filters are both mounted on the left side of the engine compartment. The fuel filter (left photo) is a little hard to see below the master cylinder. Pop the clips on the air cleaner housing, then lift the air flow meter and housing cover to replace the air filter element (right photo).



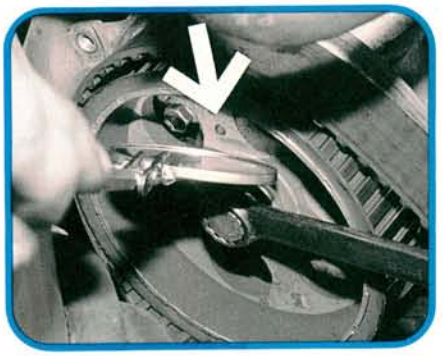
8

Timing belt replacement is recommended at 60,000 mile intervals on the 2S-E engine. Most Camrys will make it that far unless oil changes have been ignored and the engine is full of sludge. The belt had been replaced once on this engine. We removed the covers to check belt tension and valve timing.



9

Timing belt tension is set by this spring (arrow). A loose belt will rub the inside of the plastic timing cover and may make a noise that sounds similar to a bad water pump bearing. Check the belt for wear, then loosen the idler pulley bolt. Turn the engine over twice, then re-torque the pulley bolt.

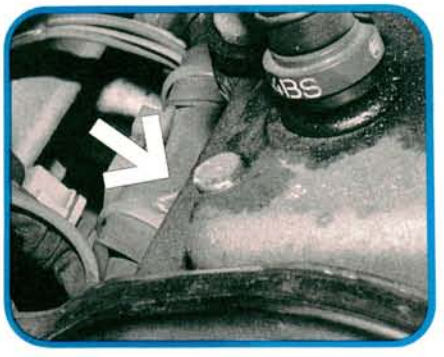


10

There are no timing marks on the crankshaft sprocket. If you're replacing a timing belt, line up the timing mark on the drive belt pulley with the lower belt cover TDC mark before removing the pulley. Check valve timing through this small inspection hole (arrow) in the camshaft pulley.

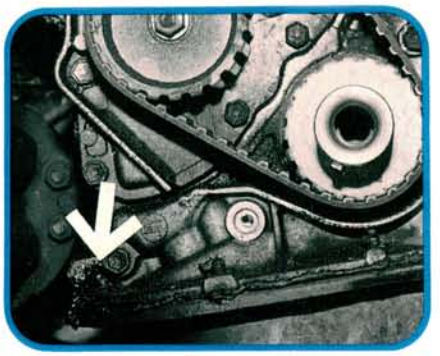
11

The ribbed drive belts used on Camry four cylinder engines may *feel* loose even when properly adjusted. Use a belt tension gauge to avoid overtightening, and prevent noise and premature wear. Toyota claims the belts will last 60,000 miles. We found a slightly frayed power steering belt that made it past the 100,000 mile mark.



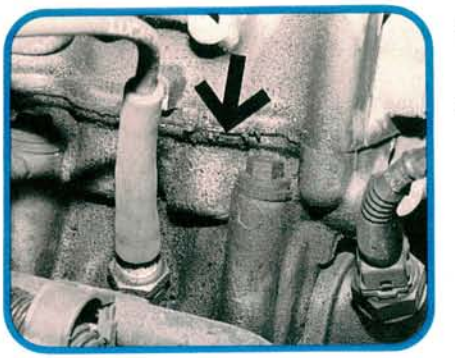
12

Check for oil leaks on both 2S-E and 3S-FE engines during maintenance services. A leaking fuel pump block-off plate gasket at the back of the head (arrow) on 2S-E engines will send a hidden stream of oil sneaking down the back of the engine. A small puddle of oil directly below the plate is a good clue.



13

The 2S-E oil pump is built into the engine's aluminum front cover. A leaking gasket at the rear of the cover (arrow) can cause a drop in oil pressure and a flickering warning light at idle. Lots of oil pressure switches have been mistakenly replaced in an attempt to correct this problem.

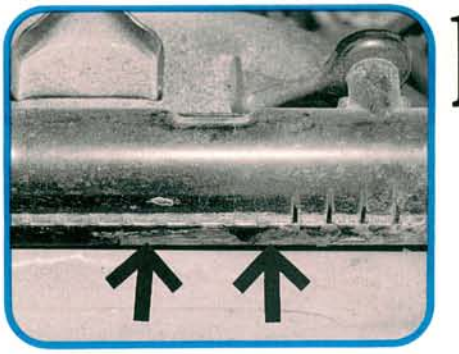


14

The cam housing on the 2S-E is sealed to the cylinder head with a formed-in-place RTV sealer. Deferred maintenance vehicles seem to develop leaks in this area more frequently than those that have been more conscientiously maintained. Cam housing leaks are often mistaken for valve cover gasket leaks.

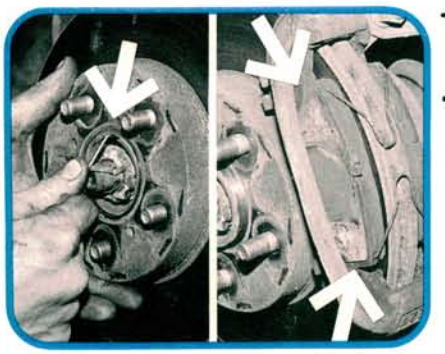
15

Oversized nuts are used on the newer 3S-FE engine to mount the valve cover to the head and also seal the area around the spark plugs. Repeated heating and cooling cycles of the aluminum engine parts may loosen the nuts, causing oil leaks. Check the nuts for tightness during spark plug replacement.



16

The Camry's radiator, like other Toyota radiators, uses plastic top and bottom tanks. Always inspect the metal crimping strips that secure the tanks to the radiator core. A rusted crimping strip (especially a bottom one) may allow the tank to separate from the core, causing a sudden coolant loss.



17

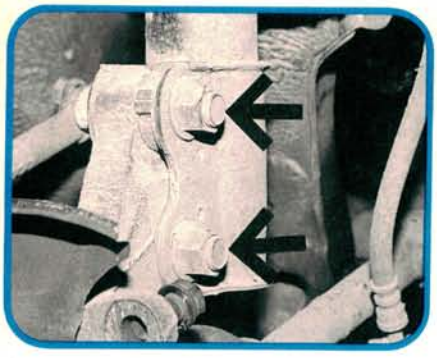
Two piece front rotor/hub combinations simplify rotor removal. Match-marking rotor and hub position (arrow left photo) before removal will prevent reassembly runout problems. Break down the caliper carriers and remove all corrosion from the pad sliding surfaces with a file (right photo).

18

For complaints of brake squeal on all Camry models, make sure that the original anti-squeal shims, plates, and springs are still in place and in good condition. Also check for lopsided or uneven wear on used brake pads. Make sure the rubber-mounted caliper sliders move freely.

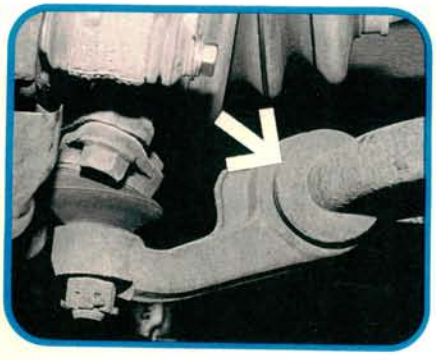
19

Nothing will ruin a fresh brake job on a Camry faster than a stud ripping impact gun. Torque all five lug nuts by hand to a 35 ft-lb initial torque. Alternately tighten all five lugs in steps to the final torque of 75 ft-lb and you're done. It might take a little longer, but it sure beats a comeback.



20

Front wheel camber and toe in are both adjustable. Loosen both lower strut mounting bolts at the steering knuckle (arrows), then turn the upper eccentric adjusting cam to set camber. Set toe in using the adjusting sleeves at both tie rods. Rear toe in is adjusted using eccentric cam bolts.



21

Watch for worn front lower control arm and tension rod bushings on first generation Camrys. Worn tension rod bushings allow the front wheel alignment to shift during acceleration and deceleration. This can have some strange effects on the steering—especially when turning corners.