

# Civics Lesson

With the public's confidence in our elected officials at an all time low, we thought you might be ready for a different kind of Civics Lesson. We'll be studying four wheeled Civics, rather than trying to explain how they count the votes in the Electoral College.

Honda has been producing their popular Civic model since the early '70s. Since then, a growing number of Americans have elected to park Civics in their driveways. The Civic has changed a lot since its humble beginnings. All you need to do is put an old Civic next

to a new one to see how extensive the changes have been.

We can't hope to cover every Civic model, so this article will focus on the 1984-87 and 1988-91 Civic model series. These are the models that are most likely to be visiting your shop for service. Service information that will help you on one model series will rarely apply to its successor. To avoid confusion, all of the information contained in this article is divided into the model year groups listed above.



## Odds and Ends



The following 1988-91 model service information didn't fit our photo caption format, so we have included it here.

## Control Cable Adjustment



Proper automatic transmission shift cable adjustment is very important on both older and newer Civic models. Honda uses a unique two cable setup for their transmission and accelerator cables. The throttle cable runs from the accelerator pedal to the carburetor, while the second cable runs from the accelerator pedal straight to the transmission. This can make proper cable adjustment a bit of a challenge.

When the accelerator pedal is depressed, the transmission shift cable should begin to move at exactly the same time that the throttle cable moves. The shift cable can be shortened up to an additional 3 mm to tailor the shift points and lockup characteristics of the transmission.

A properly adjusted shift control cable should produce the following transmission operating characteristics on a flat road at 45 MPH with a steady throttle opening:

- The locking converter should lock and stay locked.
- Depressing the throttle slightly should disengage the converter and increase the engine speed by about 250 RPM.
- Depressing the throttle further should force a 4-3 downshift.
- Releasing the accelerator slowly at 45 MPH should disengage the converter and decrease engine speed.

An incorrectly adjusted control cable may cause the following operating characteristics:

- If the control cable is too tight (not enough free play), slowly releasing the accelerator may cause the locking torque converter to disengage and the engine speed to increase.
- If the transmission control cable is too loose (too much free play), slowly releasing the accelerator may cause the engine speed to decrease suddenly.
- Check the throttle and cruise control actuator cable adjustments if using the cruise control causes erratic torque converter lockup.

## Rock and Roll



Tell your Civic automatic transmission customers to call a tow truck if they get stuck in a snow bank. Honda automatics don't take well to the rocking technique often used by owners to free themselves from these situations. A complete

set of transmission parts, nicknamed a "rock and roll kit" by Honda technicians, is available to correct the transmission damage if the owner doesn't heed your advice.

## Valve Train Wear



A noisy valve train on 1988 and later Civic engines may be caused by worn rocker arms. Remove the valve cover and make sure the valves are properly adjusted, then move the rocker arms from side to side to check for extra clearance. A factory kit including new rocker arms and assorted parts is available to correct the valve train noise.

## Electrical Glitches



Electrical problems seem to crop up more frequently on 1988 and newer Civics. The following quick hitters might save you some diagnostic time.

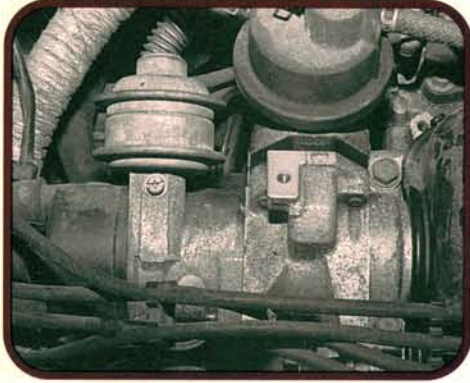
- If you have good spark but no injector pulse, check the sensor rotor at the bottom of the distributor to make sure it's turning. The roll pin that holds the sensor rotor to the distributor shaft may rust off.
- No power to the ECU may be caused by a loose fuse. Remove the fuse and twist the fuse blades slightly to improve the electrical contact.
- Water in the main relay on fuel injected models may cause no start problems. Repair the water leak at the windshield or antenna base, then install an updated relay (H/C 2907640). The updated relay mounts with its harness connector facing down so that water can't get into the relay.
- A poor connection in the ground circuit to the fuel pump and fuel gauge may cause the engine to stall and the fuel gauge to drop to zero on 1988 Civics. The offending connector is located under the rear seat. Repair the connection by separating the connectors, then giving each of the male terminals a slight twist to ensure good contact.
- Several sensor grounds are spliced together with a crimp connector in the harness. The crimp connector is located about two inches from the Y in the harness where the coolant temperature sensor and injector wires meet above the starter motor. If the connector is loose or corroded, the resulting voltage drop on the ground side makes the ECU think the engine temperature is colder, EGR is higher, and the throttle is open further than it actually is. This may not set a code, since the ECU is looking for opens or grounds. Wiggle the harness to check for sensor voltage fluctuations.

—By Karl Seyfert



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## 1984-87 MODELS



**1**

Always set the ignition timing with the distributor vacuum advance hoses connected. Look for a vacuum advance problem if the adjusting slot doesn't seem long enough to properly set the timing. Advancing the timing to compensate for a vacuum advance failure can cause detonation damage.



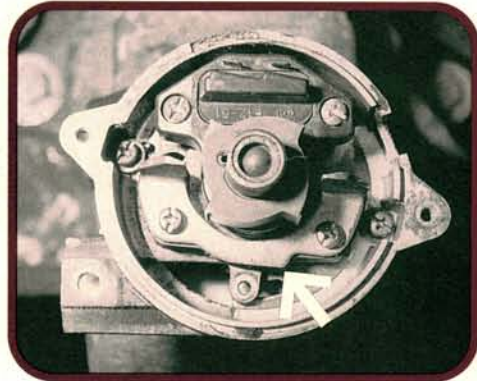
**2**

To test the distributor advance system, warm up the engine and disconnect both vacuum hoses. There should be vacuum at the inside hose but not the outside hose. Plug the hoses and make sure the timing is 3-4 degrees before TDC. If not, check for a sticking advance mechanism or a faulty advance diaphragm.



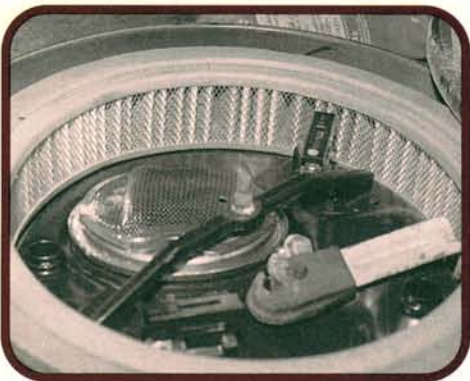
**3**

Reconnect the inside hose. Check the inside advance diaphragm if the timing doesn't advance to the red timing mark. Apply vacuum to the outside diaphragm. The timing should advance an extra 4-6 degrees. If not, check the outside advance diaphragm. Reconnect the outside hose and set the timing to specifications.



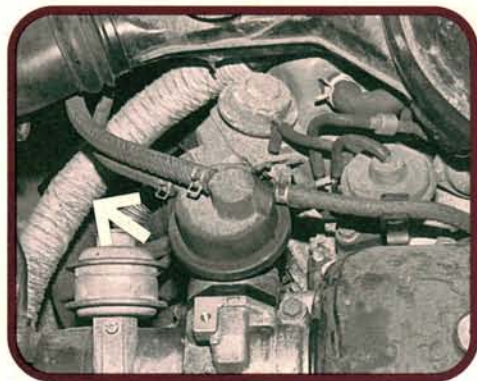
**4**

Distributor assembly can be tricky. The reluctor must be installed with its letter code facing upward. Incorrect installation will cause ignition timing problems. Also, the distributor stator and magnet have the same shape. The magnet is properly installed when the magnet contour aligns with the stator.



**5**

Some air filters aren't big enough to make a tight seal inside the filter housing. This allows dirt to enter the carburetor and may cause the secondary throttle plate or choke plate to stick. Hard starting may result if the choke plate can't close. A stuck secondary will cause a fast idle when warm.



**6**

Check the condition of the air cleaner preheat tube and thermostatic switch. A broken carburetor preheat system may cause carburetor icing and stalling problems when the air temperature hovers around the freezing mark. The cold damp inlet air freezes and clogs the carburetor throat.





# 7

A worn rubber carburetor insulator may cause stalling problems, especially when the engine is cold. The ribbed sealing surface of the insulator flattens out over time, creating vacuum leaks. To test for insulator leaks, aim propane around the edges of the insulator and watch for an increase in engine RPM.



# 8

To purge air from the cooling system, raise the right front corner of the car. Put the heater on high and turn off the fan. Bring the engine to operating temperature. Remove the radiator cap, then open the bleeder until all air is purged. Close the bleeder, then lower the car and fill the radiator and coolant reservoir.



# 9

Timing belts and water pumps are especially important on 1984-87 models because these engines are valve benders. The timing belt also drives the water pump and a seized pump can jam the belt and take out several valves. These problems are so common that good used engines are often hard to come by.



# 10

Another cause of engine death is oil starvation. Problems occur when the engine is run low on oil or when oil change intervals are ignored. Camshaft breakage caused by an oil starved number one cam bearing killed this engine. The cam bearings aren't replaceable, so the whole head is a write off.



# 11

When removing the cylinder head, think twice about disconnecting all of the vacuum hoses. Nobody uses more hoses than Honda. It's less confusing to unbolt the various vacuum components from their mounting points around the engine compartment. Stack them on top of the head, then remove everything with the head.



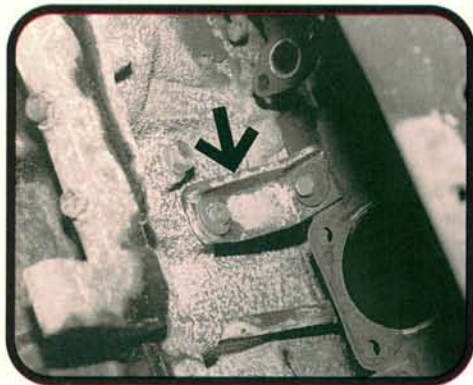
# 12

Good luck if the engine is equipped with power steering. The pump straddles the timing belt cover and must be moved out of the way to access the belt cover or remove the head. The cast iron mounting brackets are bolted to the head and block and must also be removed before removing the head.



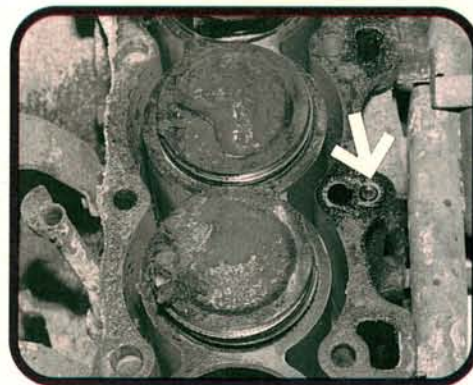
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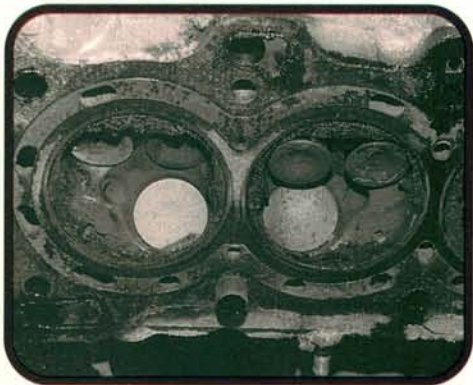
**13**

Don't start lifting yet. Hidden brackets secure the exhaust manifold to the block. Remove the exhaust manifold heat shield to access the catalytic converter mounting bolts. Drop the converter out of the way, then remove the manifold bracket bolts. A bracket at the rear of the engine secures the intake manifold.



**14**

Poor head gasket sealing may cause an oil leak at the rear of the engine, near the center. The oil supply passage to the head is located here. Since the oil filter and oil pressure sending switch are both located just below, these parts may be incorrectly blamed for the gasket leak.



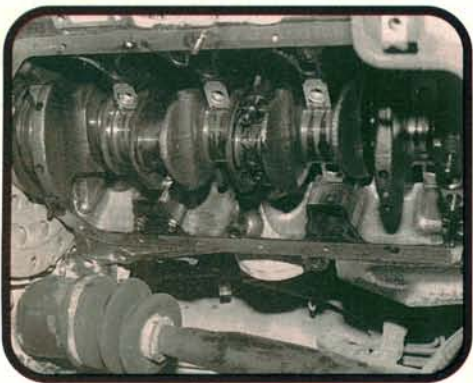
**15**

The pistons kissed a few valves before the engine stopped. Valve carbon buildup can be a problem on these engines, especially if the engine was normally operated at low revs. The carbon may hold the valves open and cause a compression loss. Treatment with carbon cleaner will usually restore the compression.



**16**

This 100,000 mile engine will be back in service after a fresh set of rings and rod bearings and some mild cylinder honing. While removing the oil pan, we check it for rust damage. Pans that have been subjected to a lot of stone and salt abuse may begin to leak oil when the pan gets thin.



**17**

The aluminum block uses a reinforcing girdle to house the lower main bearing caps. While it's possible to loosen and remove the rod bearing caps without removing the girdle, it's much easier with the girdle out of the way. Otherwise you'll end up cutting yourself on the sharp edges trying to work around it.



**18**

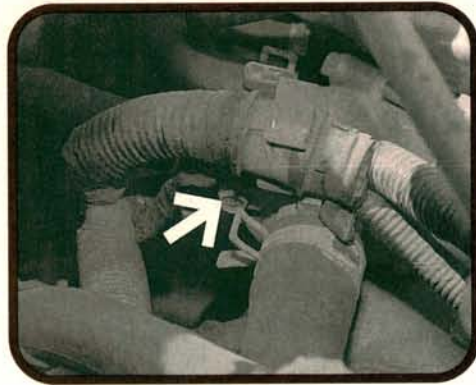
Next we remove the pistons and check for damage. The valves knocked the carbon off the piston heads, but did no further damage. The oil control rings on all four pistons were stuck in their ring grooves. The cylinder wall crosshatch is still visible and no cylinder scoring is found.





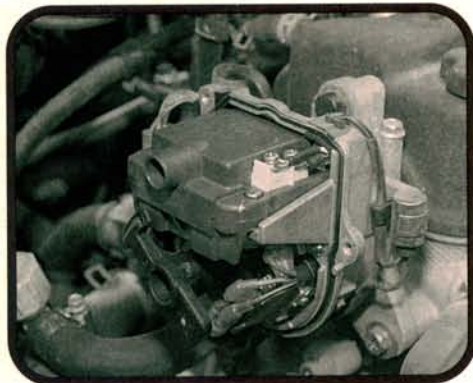
# 19

Installing a fully assembled cylinder head is an economical alternative to buying the parts one at a time. It makes a lot of sense on a high mileage engine, since even undamaged parts may be worn. After swapping the manifolds onto this complete Honda head, it will be ready for reinstallation.



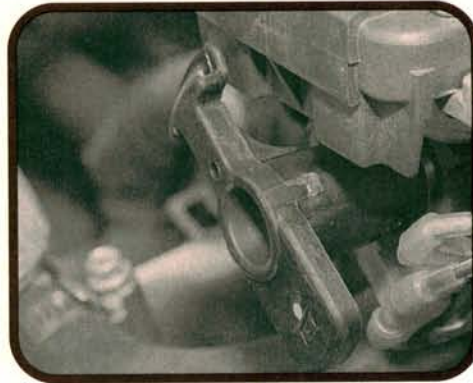
# 20

While 1988 and later Civics aren't valve benders, they do have a few problems of their own. A loose or corroded ground connection at the thermostat housing (arrow) can cause no spark, misfire, surging, erratic tachometer operation, and as many as five different trouble codes.



# 21

Distributor igniter failure may be caused by low coil primary resistance. The specification is 0.3 to 0.5 ohms. Replace the coil if its resistance is below specs. The small igniter screws are held in place with thread locker. Heat the screws with a soldering iron to loosen the thread locker.



# 22

The secondary spark may burn a hole through the distributor rotor's center electrode, allowing the spark to ground at the distributor shaft. The burn mark may be difficult to see. Remove the rotor for a careful inspection of the underside of the rotor.



# 23

If there's no spark, the injector(s) may continue to fire when the engine is cranked. The unburned fuel can wash down the cylinder walls and cause a compression loss. After repairing the ignition, add oil through the PCV system while cranking the engine to restore the lost compression.

