May 2015

the wrench
Honda Technician Newsletter

All Models

Compression and Leak-Down Testing

If a customer is complaining of poor engine performance and the vehicle displays the following symptoms, the first diagnostic analysis should be a compression test.

- Hard to start
- Engine will crank but does not start (and spark is good and on-time)
- Backfiring
- White/Blue smoke coming from the tailpipe
- Low top speed

Compression Test

Refer to the *Cylinder Head/Valve Specifications* section of the model specific Service Manual and note the specified cylinder compression value. For specific instructions on compression testing, refer to the *Engine Testing* section of the Common Service Manual.

If the results of the compression test do not meet the Service Manual spec, the next step should be a leak-down test, which will give you a "window" into the combustion chamber.

Four-Stroke Leak-Down Test

A leak-down test will pressurize the combustion chamber with a regulated supply of compressed air and indicate the percentage of cylinder leakage. For specific instructions on leak-down testing, refer to the *Engine Testing* section of the Common Service Manual. On multi-cylinder engines, be sure to leak-down test every cylinder at TDC on the compression stroke. Refer to the *Valve Clearance Inspection* section of the service manual and follow the procedure for finding TDC on the compression stroke.

If the cylinder leakage is 10% or greater listen for air escaping at the crankcase filler cap, airbox, and exhaust to determine whether the air is leaking from the rings, intake valve(s), or exhaust valve(s) respectively. If none of those areas reveals a leak, check for a leaking head gasket.

Percentage of Cylinder Leakage	Engine Condition
0% – 9%	Engine/cylinder is in good condition. Proceed with tune-up or scheduled maintenance.
10% or greater	Engine/cylinder may be in poor condition. Find the source of the cylinder leakage. Check valve clearance.

Compression and Leak-Down Testers are available from the Motorcycle Tool & Equipment Program on iN:

Service > Tools > Tool & Equipment Program

Motorcycle Compression Gauge Set

Order No. EEPV503

4-Stroke Leak Down Tester

Order No. MTP08-0126

On-Road

All Models

HID Modified Headlights

TechLine has received a number of requests for electrical diagnostic assistance that had as their root cause installation of a High Intensity Discharge (HID) headlight conversion kit. AHM has also received warranty claims for "failed" electrical components that have been traced to the installation of a HID headlight. Keep in mind that Honda does not develop or test HID headlight systems on any North American motorcycles, so their compatibility with Honda OE electrical systems is a complete unknown.

HID headlight conversions are typically pretty invasive and usually include the installation of a ballast and, in some installations, relays. As a result, they can present opportunities for ill advised and poorly executed connections into the factory wire harness. Even if the connections are good, the radio frequency (RF) interference produced by the ballast can cause problems.

If you're presented with unusual electrical system maladies, first verify that battery voltage is within spec and then look for electrical system modifications like HID headlight conversions or alarm systems. Disable any modifications to see if they have an effect on the problem.

Remember, AHM warranty does not cover removal or re-installation of an aftermarket accessory for diagnosis, nor does it cover damage caused by aftermarket accessories.

Off-Road

TRX Models with Dual Clutch Transmission (DCT): TRX420FA/FPA, TRX420FA1/2/5/6, TRX500FA5/6/7

Automatic Downshifting in ESP Mode

In ESP (manual shift mode), when the vehicle speed falls below a set speed, the transmission will automatically downshift to the next lower gear. Refer to the *Shifting Gears* section of the vehicle Owner's Manual for the downshift speeds. If the driver comes to a complete stop without downshifting manually, the transmission will automatically downshift to third, second, or first gear. This depends upon the model and which gear range (TRX500) is selected. Be sure to note the following parameters when troubleshooting shifting complaints on these models.

TRX420FA/FPA ('09 – '14)

If the vehicle comes to a complete stop in ESP mode, the transmission will automatically downshift to **3rd** gear.

TRX420FA1/2/5/6 ('14 & Later)

If the vehicle comes to a complete stop in ESP mode, the transmission will automatically downshift to **2nd** gear.

TRX500FA5/6/7

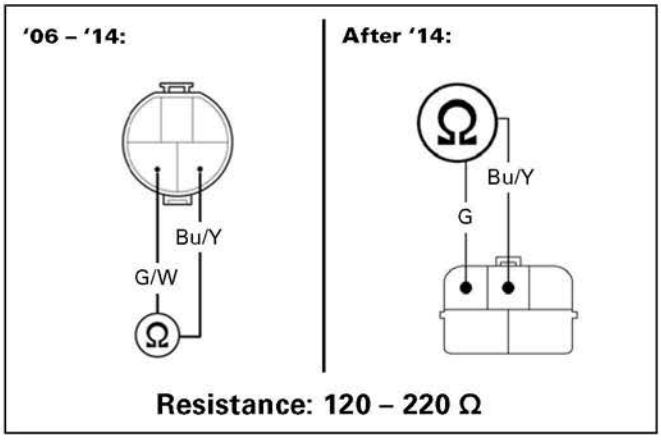
If the vehicle comes to a complete stop in ESP mode, the transmission will automatically downshift to **2nd** gear when in gear range "D," or **1st** gear when in gear range "L."

2006-2015 TRX680FA

Engine Cranks But Will Not Start

If during the troubleshooting for this problem you find there is no spark at the plug, use the following troubleshooting procedures, in order.

1. Refer to the Service Manual and test the ignition coil primary peak voltage. If the results are OK according to the Troubleshooting table on page 21-5, go to step 2.
2. Refer to the Service Manual and test the CKP sensor peak voltage. If the results are OK according to the Troubleshooting table on page 21-5, go to step 3.
3. If both the ignition coil primary peak voltage and CKP sensor peak voltage are within spec and there is no spark at the plug, measure the resistance through the CKP sensor at the alternator connector with a multi-meter as shown. If the resistance is outside the value shown, replace the stator.



Resistance: 120 – 220 Ω

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