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## Cannondale Motorsports Technical Bulletin

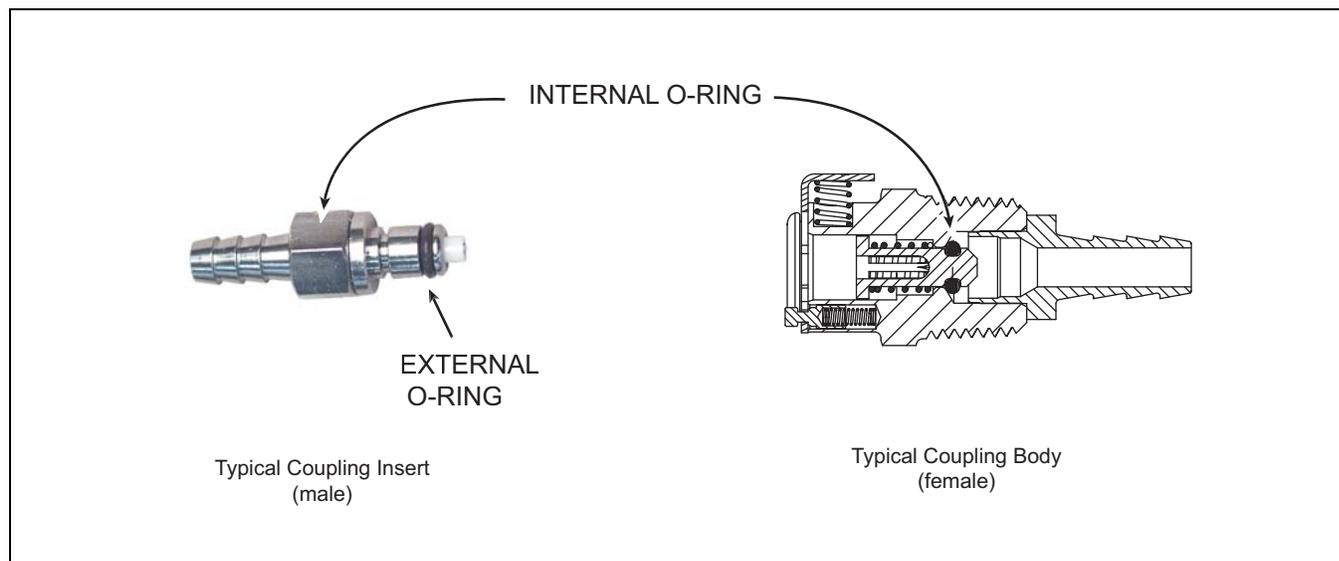
BULLETIN : TB02-006

MODELS : All 2001, 2002 ATVs and Motorcycles

ISSUED : 5/8/02

SUBJECT : Fuel quick connect O-ring damage

Octane boosters, fuel additives, "racing fuels" and some fuel injection system cleaners can damage the O-rings of the fuel system quick connect couplers resulting in reduced or severely restricted fuel flow. The flow restriction is caused by swelling of the internal O-rings of both the male and female couplings when exposed to certain chemical compounds used in the formulation these products. Inadequate or restricted fuel flow can reduce engine performance and in severe cases cause engine stalling. Several coupler types are in use on ATVs and Motorcycles. See the illustration "Fuel Quick Connects" on page 3 of this bulletin.



**Cannondale DOES NOT recommend the use of any racing gas, fuel additives, cleaners, modifiers, or octane boosters.** These widely available "performance" products are NOT recommended. In addition to damaging the quick connects, these products can cause damage to other engine systems. Some formulations are produced with chemicals that will attack and degrade fuel hoses clogging the fuel filter, pump and injectors.

**We strongly suggest that vehicle owner's refrain from experimentation with fuel additives and mixtures.** Any ATV or motorcycle operator should use only clean "pump" premium unleaded gas with an Anti-Knock Index of 93 or higher. The Anti-knock Index is posted on the pump at US service stations.

*Information is subject to change without notice.*

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## INSPECTION

Indications of poor fuel flow can be:

- 1 - A noisy or winning fuel pump.
- 2 - No or low fuel flow visible through the clear fuel filter with the pump running.
- 3 - Engine stalling at throttle opening.

The following test can be used to diagnose a potential O-ring problem:

### WARNING

**Gasoline is extremely flammable and is explosive. Handle with extreme care!**

### WARNING

**When inserting a pressure gauge into the fuel system, make sure all hose connections are secure.**

**Install the T-fitting securely. Pressure generated in the hose can cause improperly install T-fitting and hose ends to separate while the fuel pump is running. Fuel can spray out increasing the chances of fire or explosion.**

1. Make sure the male fitting external O-rings are in good condition. Damaged O-rings can result in pressure loss or the introduction of air into the fuel lines reducing developed fuel pressure.
2. Replace the fuel filter to assure adequate fuel flow to the pump.

### CAUTION

**Do not perform this test with unfiltered fuel; severe damage can occur to the pump or fuel injectors.**

3. Fill fuel tank with the specified fuel as required.

4. Hold a clean rag around the fuel pump outlet hose clamp and slowly loosen the hose clamp to relieve any residual fuel system pressure.
5. Install a T-fitting in between the fuel pump outlet and fuel injectors.
6. Start the engine and read the generated fuel pressure with the gauge. The pressure should be  $44 \pm 2$  psi (3 bar) at idle. Raise engine rpm and read the fuel pressure. The pressure should remain constant at  $44 \pm 2$  psi (3 bar). If the reading changes with engine rpm or is out of the specified range, check the pressure regulator and fuel pump. If they are ok, the O-rings may be restricting the fuel supply. Replace fittings to obtain specified fuel pressure.

## FUEL QUICK CONNECTS

### COUPLING INSERTS (male)



P/N 5002141-02  
(90° Alum.)



P/N 5000324  
(90° Brass/Chrome Plate)



P/N 5000325  
(Brass/Chrome Plate)

### COUPLING BODIES (female)



P/N 5002140-02  
(Alum.)



P/N 5000226  
(Brass/Chrome Plate)

#### NOTE :

*Female connector types have only an internal O-ring.*

*Male fittings have both an internal and external O-ring. The male external O-ring can be damaged severely when inserting if the locking tab of the female coupling body is not pressed in first. If the O-ring is damaged, a fuel leak can result. As a step toward preventing tears and rips, always lubricate the male O-ring with some clean engine oil before inserting. The external male O-ring can be replaced, the internal sealing O-rings the male or female coupling bodies are not serviceable. If normal fuel flow is restricted through the fittings, they must be replaced with new ones.*