flashed to the latest software per Honda's bulletin. When I ran the same pressure test, no difference was apparent other than crisper shifts, so that ruled out a correction with a re-flash.

After studying the hydraulic charts I discovered the reason for the presence of this oil pressure. Remember that the PCM modulates linear solenoids A and B to control the gradual engagement and disengagement of the clutches that are coming on and going off. It does this by slowly increasing or decreasing the amperage. For more details see "A View into the Honda Five-Speed's Shifting" in *Transmission Digest*, August 2011.

Let's look at the PCM solenoid strategy during a 4-2 downshift, using the sweep reading of the scope in **Figure 7** as an example. As you can see it takes three steps to accomplish a 4-2 downshift.

We start with all solenoids off in fourth gear.

1) Solenoid C (blue) is turned on for about 0.3 second. This action moves shift valve C, connecting fourth-clutch-circuit oil to CPC A oil pressure, already at high amperage (high pressure), and makes the solenoid shifting strategy the same as for a 3-4 shift: SSA off, SSB off, SSC on.

2) Next, as solenoid C (blue) is being turned off again, solenoid B (green) is being turned on at the same time for about 1 second. This gives us the solenoid strategy for the 2-3 shift: SSA off, SSB on, SSC off. This solenoid strategy moves shift valve B and connects fourth-clutch pressure that is now CPC A oil pressure to exhaust port H4X at shift valve B.

3) Finally, solenoid A (yellow) goes back on, giving us the solenoid strategy in second gear: SSA on, SSB on, SSC off.

Now let's look at what is going on in the hydraulic circuit during a 4-2 downshift (**Figure 8**). When SSC was turned on for 0.3 second, CPC B oil pressure that was beginning to modulate to lower amperage (**Figure 9**) increased in pressure. Because of the way the shift valves are placed by the solenoids, this CPC B pressure starts to enter third-clutch circuit through