ntelligent Engine Analyzer

Training

1999 Ranger 2.5L std. trans, 117K miles

by Rusty Flake - Beck Service Center

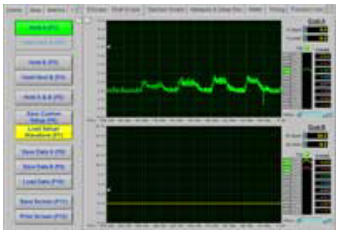

Fig. 1

Complaint: Starts and idles fine, but surges when put into gear. When I went to the truck and started it, it bucked and jerked and died several times before it got to where it would even idle. After letting it run long enough to stabilize at idle(several minutes) I tried to drive it into the shop, it could not be throttled up or it would sputter and jerk and die. I had to let it idle and slowly release the clutch to get it rolling enough to coax it into the shop. After finally getting into my bay, Ipulled codes and retrieved P0171 sys lean, I then connected my gas analyzer to look at lambda out the tail pipe. The exhaust showedbetween 25-30% lean when Idling fairly smoothly, I still could not bring it off idle, fast or slow, when trying too, the exhaust lambda reading went to 80% lean, when it didn't die out completely before it could be kept running. The fuel system on this truck is returnless, the fuel spec., when converted in alldata was 63 psi. I connected my flow meter with the outlet hose into ma container and restricted, to allow some type of a measurement of flow. The pressure showed 61 psi and flow was .2 gpm, when the restriction was opened to allow .5 gpm the pressure dropped to 50 psi. At this time I recommend a fuel pump and filter with a potential check of pwr. and ground through the sender and suggest sending the inj.'s out for cleaning.The job was approved and completed, with a result that wasn't good. Basically the truck ran the same with the exception that it took less time for it to be able to idle and could be snap throttled now without dying. Looking at fuel trims, O2's and lambda, this truck was still running very lean. Since I can now snap throttle I look at MAF sensor waveform, not good, replaced MAF sensor and finally the truck is fixed.

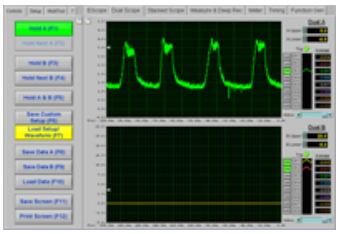

Fig. 2