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Subject: CEN24LA350 Fuel Injection Servo Examination

Contact: AVStar Fuel Systems, Inc. 1365 Park Ln South, Jupiter, Florida 33458.

The AVStar fuel injection servo model LFR-NNSS5, serial number AV57811031 was manufactured on January 01, 2023, and accrued 1029.7 hours in service. The servo was unboxed and examined at AVStar Fuel Systems, Inc in Jupiter. There was no impact damage noted to the servo. The fuel inlet screen was absent, and a dark oily residue was observed on the throttle valve and venturi. A temporary fuel inlet screen was installed, and the servo was fitted with test ports and attached to a calibrated flow bench. No debris or exterior leaks were observed during flushing of the servo in preparation of the flow check.

The servo was checked at seven test points. Test points No. 1 & 2 were within limits. Test points No. 3 thru 7 were below minimum service limits when compared to the AVStar Calibration Test Specification sheet; refer to Figure 1.

			SL	Flow Meter Limits		SL	SL	SL				
Minimum (lb/hr)	22.0	0.0	32.0	31.2	38.0	32.05	64.0	62.4	77.0	75.045	112.0	109.2
Observed (lb/hr)	↑ 25.5	Ø	29.0	36.0	60.0	75.0	110.0					
Maximum (lb/hr)	28.0	5 (cc/min)	35.0	41.0	68.0	82.0	117.0					
TARGET (lb/hr)	22.0	0 (cc/min)	34.0	40.0	66.0	80.0	116.0					

Figure 1: AVStar Calibration Test Specification Results

The servo was removed from the test stand and disassembled. Removal of the venturi assembly revealed a thick blue liquid consistent to oil and fuel was observed in the venturi chambers. Oil residue was noted in the hex-plug and air diaphragm. The regulator stem nut and spring seat remained secured with oil residue noted on

the spring and stem assembly. Oil residue was noted in the air passage to the air diaphragm. No contamination was noted to the metering side and diaphragm of the servo. The ball valve exhibited wear consistent with the hours in service, and no excessive scoring was noted to the mixture plate; refer to Figure 2.

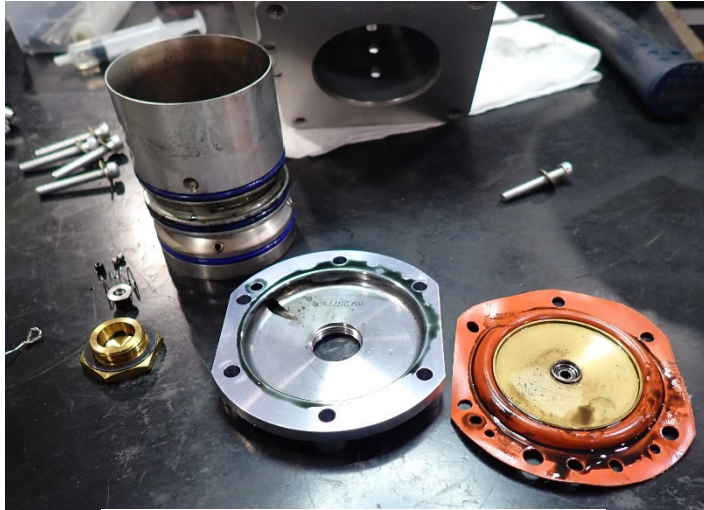


Figure 2: Oil residue on venturi and air diaphragm

A review of the servo's build records revealed that, all seven test points were all within limits of the AVStar Calibration Test Specification sheet; refer to Figure 3.

Flow Meter Limits							
Minimum (lb/hr)	22.0	0.0	32.0	38.0	64.0	77.0	112.0
Observed (lb/hr)	22	0	32.5	38	64	79	114
Maximum (lb/hr)	28.0	5 (cc/min)	35.0	41.0	68.0	82.0	117.0
TARGET (lb/hr)	22.0	0 (cc/min)	34.0	40.0	66.0	80.0	116.0

Figure 3: AVStar Calibration Test Specification Build Records

END