

# DUNCAN INTELLIGENCE

Edited by Ken Kuchenreuther & Dan Arrick • Winter 2004 Special Edition

## Interfacing

By Ken Kuchenreuther

In the Pratt & Whitney 545A powered Citation 560XL, take off for the day is established by the EEC (electronic engine control) with data received from various sensors on the engine and aircraft. One input is the TLA (throttle lever angle) transmitted by the RVDT (rotary variable displacement transformer) located in the aircraft's control pedestal. Both engines should achieve approximately the same N1 (fan) speed for a given TLA.

Though other things may cause a throttle split, one interesting scenario should be shared. Pushing the throttles ahead for take off, as you pass about 50 degrees TLA (just under the cruise detent at 58 degrees TLA), the right engine heads for take off (N1) of the day. As you continue past the climb detent (66 degrees TLA), to take off (74 degrees TLA), both throttles and N1s finally match up. After lift off, the throttles match up in all configurations and at each subsequent take off, the scenario is repeated. The reason for this discrepancy is the right engine EEC is inputting a thrust reverser deployed signal. One piece to the puzzle is when the landing gear was retracted and the WOW (weight on wheels) circuit was deactivated, everything went to normal. After checking the reversers for problems, and ohming wires and switches, the problem was found in NZ021, the right EEC interface board. This board and NZ020 for the left are found in the power junction box. Fortunately, after troubleshooting, we found that replacing NZ021 returned the engine to normal operation. If you have the capability of downloading the DCU (data collection unit), you will probably find a "thrust reverser fault word (fI-06)" fault.

One more interesting bit of info is at 58 degrees TLA in thrust reversal mode, engine power would actually be equal to 74 degrees in the normal EEC mode.

## Pratt & Whitney 545A Rear Inner Bypass Duct

By Ken Kuchenreuther

The strutless rear inner bypass ducts installed on engine serial numbers between DB0406 and DB0639 inclusive have experienced some durability problems. Until November 30, 2004, Pratt & Whitney is offering the replacement parts at no charge and a labor allowance in the form of Commercial Support Program Notification A03014. The applicable SB is PW500-72-30321R1 or later revision. We have found engines in this serial number range that already have the previous configuration (duct with struts), so it is a good idea to check the engine before ordering parts. Also, there may be some engine serial numbers outside of the above range that have strutless ducts and those ducts would also need replacement.

## Pratt & Whitney 530A Flexible Fuel Hose

By Ken Kuchenreuther

Pratt & Whitney has just released service bulletin 30261 to install a new hose and attenuator between the fuel heater and high pressure fuel pump in place of the old hose assembly. The current requirement to replace the fuel hose at every 150 hours, not to exceed 200 hours will be eliminated by a revision in the near future. As in the P&W 545A, P&W would like all pre SB 30261 hoses to be used up before incorporating this SB.

Customer Support Program Notification #A03012R1 has been revised to include the P&W 530A engines and provide assistance to the operators. The CSP will be in effect until November 30, 2004

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*For Pratt & Whitney 500 series technical info, we have the experts with whom you should speak.*

*Our Engine Teams consist of technicians with hundreds of combined years of experience.*

*Need technical advice? Call Duncan's Engine Tech Rep, Ken Kuchenreuther, at 269.969.8486.*

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