Abnormal rust inside of PITOT 0851HT-2

1、Background

JJC encountered two early failure of 0851HT-2,and one cause a delay.We inspect the two pitot probes,found abnormal rust inside of PITOT(0851HT-2).During following inspection on the available pitot probes in store and installing parts on-wing, we found similar rust.

2、Information List

2.1 the different PITOT PROBE in JJC's fleet

JJC install two kinds of pitot probes, they are 0851HT-1 and 0851HT-2.We began to use 0851HT-2 since 2024/2/15,now we have 9 probes of PN=0851HT-2 in our fleet. Their highest TSN is up to 3695FH.We have 41 probes of PN=0851HT-1 in our fleet,Their highest TSN is up to 13564FH.

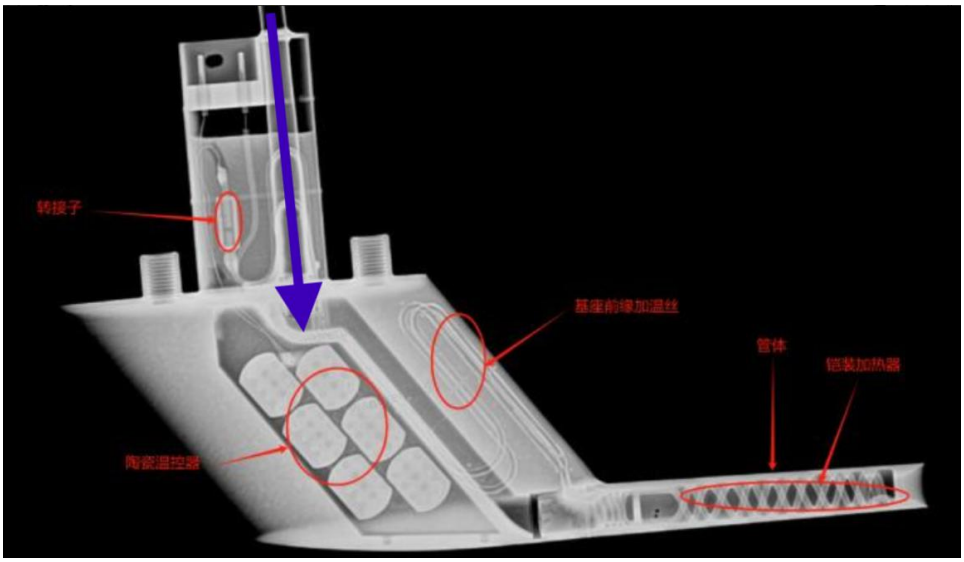
2.2 JJC's maintenanc action for pitot probe

2.2.1: We borescope pitot probe from the airinlet hole as figure below(blue arrow) for detecting rust on protective surface of heater line, because the rust will cause heater line broken. We name it "position1"

2.2.2 We replace the pitot probes predictively as the TSN reach to 20000FH,and we will not repair the pitot probes.

2.2.3 We measure the performance of pitot probe including working current(0.15A-0.85A), resistance of heater line(45ohm-65ohm), insulation resistance(>550Mohm) between shell and wire pin,.This work is done at the interval of C check.

2.2.4 We began to explore borescoping pitot probes from airoutlet hole, and found the rust in the new position as figure below（Blue arrow point）:We name it "position2"



2.3、the reliability of 0851HT-2

By now, we replace two pitot probes of 0851HT-2 as below:

We focus on two questions

(1)SN=462606 has defect within only TSN=148FH

(2)Both probes as below have rust in position2

PN	SN	Install date To Rem date	Desc	TSN/CSN
0851HT-2	457478	2024/9/2 To 2025/9/22	In C check, it is reported there is ablation on the base of pitot probe, No figure to ensure the ablation. The performance measured all satisfy requirement. we borescope it as the method in 2.4,and found there is rust.	2404FH/1339FC
0851HT-2	462606	2025/9/22 To 2025/10/16	While the aircraft is taxing, crew report “pitot heat” illuminated. It cause an OI. We measure the probe, and find that the resistance of heater line is up to 40K ohm, over the limitation. we borescope it as the method in 2.4,and found there is rust.	148FH/88FC

In Boeing’s Fix (ISO-34-25-50437) ,many operators complain the early failure of 0851HT-2.

3、What we focused on

3.1 Rust in position2 of 0851HT-2

PN	SN	Installed Date	Removal Date	status	Inspection Result	TSN	CSN
0851HT-2	457478	2024/9/2	2025/9/22	Unscheduled Removal	During the 2C inspection, the execution of EOJC-APL-73N-20-002 revealed that the base of the co-pilot's pitot probe was ablated. Other measurement results are as follows: (1) Conductance resistance (required 45-65 ohms): 47.2 ohms (2) Working current (required 0.15A - 0.85A): minimum 0.391A, maximum 0.658A (3) Insulation resistance (required greater than 1M): >550 megohms The reason for disassembly this time was that an abnormality was visually detected. However, no abnormality was found during a visual inspection in the warehouse. The coating condition of the intake port was within the acceptable range upon endoscopic inspection, but there was obvious rust and foreign matter in the corner area of the pitot tube airway when the endoscope was inserted into the exhaust port.  	2404	1339
0851HT-2	462606	2025/9/22	2025/10/16	Unscheduled Removal	Troubleshooting and replacement of the co-pilot pitot tube heating failure during operation. Measurement found that the conductance resistance of the pitot tube was 40K ohms, exceeding the standard value (45-65 ohms). This inspection of the pitot tube found that the conductance resistance was far beyond the standard value, indicating an open circuit. The coating condition inside the air intake was within the acceptable range, but the endoscope inspection of the exhaust port found obvious rust in the corner area of the pitot tube airway. This pitot tube showed such a state of rust after only 148 flight hours of use, which was	148	88

					abnormal.  		
0851HT-2	475105	NA	NA	NEW PARTS	 Obvious rust in position2	0	0
0851HT-2	462574	NA	NA	NEW PARTS	 Obvious rust in position2	0	0

0851HT-2	452233	2024-06-10	On-wing	Capt probe	 Obvious rust in position2	3253	1587
0851HT-2	458687	2025-01-26	On-wing	Standby probe	 Obvious rust in position2	1776	821

3.2 Compared to position2 of 0851HT-1

In order to ensure whether it is a common status for pitot probes. We also inspect the discarded PARTS of 0851HT-1.

PN	SN	Installed Date	Removal Date	Inspection Result	TSN	CSN
0851HT-1	429840	2022-11-17	2025-01-26	Unscheduled removal 	3553	1973

0851HT-1	334483	2016-02-24	2022-07-13	Unscheduled removal 	13828	7423
0851HT-1	307622	2017-01-05	2022-11-16	Unscheduled removal 	17612	9601
0851HT-1	335553	2016-05-24	2023-07-30	Unscheduled removal 	13987	7638
0851HT-1	377121	2018-08-16	2024-02-29	Unscheduled removal	8526	4614

						
0851HT-1	334623	2016-07-12	2023-07-06	Unscheduled removal 	13603	8979
0851HT-1	299154	2014-10-21	2024-02-15	Unscheduled removal 	19623	10718

3.3 Conclusion

1、 Compared the status of position2 betweent 0851HT-1 and 0851HT-2,the red color of rust in 0851HT-2 is very obvious,that indicate the typical rust on iron.

2、 Per the pic as below,the wire (marked by blue line) will go beside the position 2(marked by green line).We focus on the effection of rust in position2.Whether the rust will cause following result such as open circuit or short circuit?

3、More serious result, if the rust go on, some rust powder may fall into the tube which go to the water drain port and ADM.We worry about that It may cause difference on indicating airspeed.

4 Attachment borescope tools