

NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

September 14, 2021

Attachment 7 –Pratt & Whitney EEC Correlation Analysis Report

POWERPLANTS

DCA18LA163



GO BEYOND

DELTA AIRLINES (DAL)
A330-200 AIRCRAFT REGISTRATION N806NW
PW4168A-1D ENGINE #2 P733603
CRACKED FUEL SUPPLY LINE & ENGINE FIRE DURING TAKEOFF
EVENT DATE: APRIL 18TH, 2018

PSA FIELD SUPPORT

FEBRUARY 7TH, 2019

Delta Airlines N806NW Engine 2 P733603

Background & Summary

- On **April 18th 2018**, Delta Airlines Aircraft N806NW Engine P733603 in Position #2 experienced an Engine Fire.
 - Flight Crew reported a No. 2 Engine Fire ECAM message at about 500 feet AGL. Crew declared an emergency, shutdown Engine 2, and discharged both fire bottles. Crew initiated an Air Turn Back to Hartsfield-Jackson Atlanta International Airport (ATL). During the ATB, the Fire Warning cleared and made an uneventful single-engine landing. It was reported that smoke and flames were emanating from Engine 2 after landing. Airport Rescue and firefighting crews sprayed the engine with fire retardant foam and extinguished the fire. Airplane was towed to the gate and passengers disembarked. No reported injuries.
- There were two previous Fuel (Jet A) events on the same aircraft prior to the event flight on April 18th involving the main fuel supply line (FM13).
 - April 15th in Amsterdam:** Maintenance crews identified a large fuel stain under the engine, strong fuel odor when the IDG service panel opened, RH side of engine wet with fuel, and fuel in drip tray. Engine 2 was cleaned; wet and dry leak test performed with no leak findings.
 - April 16th in Amsterdam:** Engine 2 was reported wet with fuel again, large fuel puddle noted, fuel found inside the engine cowlings, no visible fuel was seen from pylon attachment, found fuel coming from sleeve of the FM13, and fuel leaking from several tears in the insulation sleeve of the FM13.
 - Maintenance crew replaced the Main Fuel Supply Line after a running leak in the FM13 was found after testing.
 - It was noted in an Airbus Review that the stack up of the fuel/hydraulic disconnect panel and the Pylon Fuel rigid pipe (flange) was not installed per drawing during both maintenances.

733603 Engine Health:

Position	Model	ESN	Current A/C Registration	TSN / CSN	Last Shop Visit	TSLV / CSLV
#2	PW4168A-1D	733603	N806NW	49,722.5 / 6,515	November 2012 at ESA	25,008.5 / 3,170

Delta Airlines N806NW Engine 2 P733603

Analysis of Available Data

Note: Tzero is the time stamp that marks Engine 2 throttle pullback to Idle Stop.

Engine 2 Oil Performance:

- Oil Temperature starts to rise abnormally almost immediately after takeoff and shows significant rise at approximately 75 seconds prior to Tzero.
- Oil Pressure showed steeper pressure loss about 40 seconds prior to Engine 2 Pullback.

Engine 2 Performance:

- Both Engines' throttles were set to the same power setting during climb; Rotor Speeds, Burner Pressure between the event and sister engine do not show any significant deviations (Note: EGT is not an available parameter to P&W).
- Master Caution Light first illuminated at 27 seconds prior to Engine 2 Pullback.

Faults:

- 53 Channel A EEC Faults and 49 Channel B EEC Faults annunciated on Engine 2 during Flight DAL30.
- The first faults annunciated were 2 instances of Dual Channel Nacelle Cooling Position Range Fault that occurred approximately 20 and 17 seconds prior to Engine 2 pullback to idle. The majority of ECC faults annunciated after Engine 2 was shutdown.
- P&W's analysis of the available data (DFDR Data, EEC Fault dump, and Airman / PFR Faults) supports Airbus's 'Engine 2 Fire Warning' time stamp at -52 seconds (22:09:22 UTC).

History/Maintenance:

- Fuel puddling under engine 2 was observed twice, during prior flights.
- Fuel wetting originating from the Main Fuel Supply Line to the pylon hydraulic interface panel connection was reported.

Delta Airlines N806NW Engine 2 P733603

Reconstructed Timeline

Delta Airlines N806NW Engine 2 P733603

UTC Time	DFDR Data		Airbus Notes	Airman Data / PFR Faults (Post Flight Report)	EEC: Channel A	ECC: Channel B
22:08:00						
22:08:17	-115	Takeoff				
22:09:00				-74 Eng 2 Fire Detect		
22:09:22			-52 ENG 2 FIRE WARNING	.		
22:09:24	-50	Flight Warning Computer (FWC) ON		.		
22:09:27	-47			.		
22:09:47	-27	Master Caution		.		
22:09:48	-26			.		
22:09:54				.		-20 Nacelle Cooling Position Range
22:09:57				.	-17 Nacelle Cooling Position Range	-17 Nacelle Cooling Position Range
22:09:58				.	-16 Nacelle Cooling Position Range	
	-15	FWC ON Master Caution		-15		
22:10:00				-14 NAC COOL VLV (E2-4511KS)/WRG:EEC J4 TO VLV POS		
22:10:14	0	Pullback		. AUTO FLT AP OFF		
22:10:23.5				. RLY PWR SPLIT (22CB)	9.5 T3 Disagree	9.5 T3 Disagree
22:10:28.8				. ELEC GEN 2 FAULT		14.8 LPT TCC ACT Position Disagree
22:10:36				. ELEC IDG 2 OIL LO PR		22 HPT TCC Actuator Position Range
22:10:39				. ELEC IDG 2 OIL SYS FAULT	25 LPT TCC Actuator Torque Motor	25 HPT TCC Actuator Torque Motor
22:10:45	31	FWC ON		. IDG2(E2-40000XU)GEN CT / GCU2(1XU2)		
22:10:46	32			. POWER SUPPLY INTERRUPT		
				. MAINTENANCE STATUS EEC 2A		
				45 MAINTENANCE STATUS EEC 2B		
22:11:00				46 EEC(E2-4000KS)		
22:11:06				.	52 HPT TCC Actuator Torque Motor	
22:11:17	63	FWC ON				
22:11:18	64					
22:11:37	83	FWC ON				
22:11:38	84					
22:11:44					90 LPT TCC Actuator Position Range	
22:11:49			95 Master Lever OFF	.		
22:11:50	96	Master Caution Eng 2 IFSD		. ENG 2 SHUT DOWN		
22:11:53	99					101 HPT TCC Actuator Torque Motor
22:11:55				.	101.25 LPT TCC Actuator Torque Motor	
22:11:55.3				.	101.25 HPT TCC Actuator Torque Motor	
22:11:55.8				.		101.75 HPT TCC Actuator Position Range
				.		101.75 LPT TCC ACT Position Disagree
22:11:56				.	102 LPT TCC Actuator Position Range	102 Nacelle Cooling Position Range
22:11:56.3				.	102.25 Nacelle Cooling Position Range	102.25 Nacelle Cooling Position Range
				.	102.25 Nacelle Cooling Position Range	
22:11:56.5				.	102.5 T3 Disagree	102.5 T3 Disagree
				105		

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UTC Time	DFDR Data	Airbus Notes		Airman Data / PFR Faults (Post Flight Report)	EEC: Channel A	ECC: Channel B
22:12:00		106	AGENT 1 Discharge	106 ENG 2 FADEC A FAULT		
22:12:34	140 FWC ON	.		. BTL1 ENG2(1WE2)/FDU2(1WD2) AGENT 1 RELEASED		
		165		165 RCC (E2-4006EV)/EIVMU2(1KS2)		
22:13:00				166 PES CTRL (8MK)/DIR2(102RH) . Y ENG 2 PMP (E2-4000JG2)Y HYD RSVR		
				225		
22:14:00	226 Eng 2 Erroneous Data			226 EEC(E2-4000KS)		
	.			.		
22:15:00				285		
22:15:18	304			286 EEC(E2-4000KS)		
22:15:25				.	311 Nacelle Cooling Position Range	312.7 Nacelle Cooling Position Range
22:15:26.7				.	312.7 Nacelle Cooling Position Range	312.7 Nacelle Cooling Position Range
22:15:27				.	313 LPT TCC Actuator Position Range	313 HPT TCC Actuator Position Range
22:15:29.5				.		315.5 LPT TCC ACT Position Disagree
				.	336.5 LPT TCC Actuator Torque Motor	336.5 HPT TCC Actuator Torque Motor
22:15:55	341 FWC ON					
22:15:56	343					
				345		
22:16:00				436		
				.		
				405		
22:17:00				406		
22:17:42.5				.	448.5 HPT TCC Actuator Torque Motor	
				465		
22:18:00				466		
22:18:10.5					476.5 HPT TCC Actuator Position Range	
22:18:46.5						512.5 LPT TCC Actuator Torque Motor
				525		
22:19:00		526	ENG 2 FIRE DET FAULT	526 ENG 2 MINOR FAULT		
22:19:16	542 FWC ON					
22:19:18	544					
22:19:24			550	FIRE WARNING disappears		
22:19:28				.		554 SVA Position Range
22:19:30				. SVA(E2-404KS)/WRG:EEC J12 TO SVA POS SIG	556 T3 Disagree	556 T3 Disagree
22:19:35	561 Master Caution			. ENG 2 FIRE DET FAULT		559 SVA Torque Motor
22:19:36	562			. ENG 2 FIRE LOOP B FAULT		
				. ENG 2 FIRE LOOP B/FDU2(1WD2)		
		585		585		

* AIRMAN / PFR faults recorded to the nearest minute.
Order shown does not reflect true sequence.

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UTC Time	DFDR Data	Airbus Notes	Airman Data / PFR Faults (Post Flight Report)	EEC: Channel A	ECC: Channel B
22:20:00			586 ENG 2 FADEC SYS FAULT		
22:20:06	592 Master Caution		.		
22:20:07	593		.		
22:20:14			. ENG 2 EGT OVER LIMIT	600 EGT Out of Range	
22:20:19			. SVA(E1-4040KS)/WRG:EEC J2 TO SVA TM	605 SVA Torque Motor	
22:20:30			.	616 SVA Position Range	616 FMU SOV Position Range
22:20:34			. OIL QTY XMTR(E2-4050KS)	620 Oil Quantity Level	620 Oil Quantity Level Range
			. ENG 2 FIRE LOOP A FAULT	620 Oil Quantity Level	620 Oil Quantity Level Range
22:20:44			. FMU(E2-4071KS)/WRG:EEC J12 TO FMV LLVDT POS	630 T3 Out of Range	630 FMU FMV Position Range
22:20:46	632 Master Caution				
22:20:47	633				
			645		
22:21:00			646		
22:21:5			.	651 Fuel Temperature >300 Deg F	651 Fuel Temperature > 300 Deg F
22:21:32			.	678 FOC Valve Torque Motor	
22:21:32.5			.		678.5 FMU Torque Motor
22:21:44			.	690 FOC Valve Position Range	
			705		
22:22:00			706		
	762 Master Caution		.		
			765		
22:23:00	.		766 HSMU (1JG) DISCRETE INPUT S207		780 Fuel Filter Delta P Switch Range
22:23:14	.		. HYD Y SYS RSVR LO LVL		788 IDG Oil Temperature Range
22:23:22	.		.	788 IDG Oil Temperature Range	788 IDG Oil Temperature Range
22:23:38	804		.	804 HPT TCC Actuator Torque Motor	804 HPT TCC Actuator Torque Motor
			.	804 HPT TCC Actuator Position Range	804 HPT TCC Actuator Position Range
			.	804 LPT TCC Actuator Torque Motor	804 LPT TCC Actuator Torque Motor
			.	804 LPT TCC Actuator Position Range	804 LPT TCC ACT Position Disagree
22:23:47	813 Master Caution		.		
22:23:48	814		.		
			825		
22:24:00			826 HYD Y SYS LO PR		
22:24:03			. Y ELEC PMP (1JJ) / Y HYDRSVR / Y CUDU (2JJ)	829 T2.5 Range (Channel B only)	829 Only CHB T.25 Range
	834 Master Caution		.		
22:24:25	.		. ADVISORY ENG2 NACELLE TEMPERATURE	851 FMU Torque Motor	
	.		. ENG INCREASED FUEL BURN	851 FMU FMV Position Range	
22:24:25.5	.		. TCC ACTR(E2-4508KS)/WRG:EEC J10 TO HPT TM	851.5 FMU SOV Position Range	851.5 FMU SOV Position Range
22:24:26	.		. ENG 2 CTL SYS FAULT	852 FMU SOV Position Range	

* AIRMAN / PFR faults recorded to the nearest minute.
Order shown does not reflect true sequence.

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UTC Time	DFDR Data	Airbus Notes	Airman Data / PFR Faults (Post Flight Report)	EEC: Channel A	ECC: Channel B
22:24:32	.		.	858 Engine Oil Pressure	858 Engine Oil Pressure Range
	.		.	858 IDG AOHX Valve Position Range	858 Engine Oil Pressure Range
	.		.	858 Fuel Temperature Range	858 Fuel Temperature Range
	.		.	858 Fuel Temperature Range	858 Fuel Temperature Range
	.		.		858 FOC Valve Torque Motor
22:24:32.3	.		.	858.3 2.5 Bleed Torque Motor	858.3 2.5 Bleed Torque Motor
22:24:32.5	.		.	858.5 2.5 Bleed Position Range	858.5 2.5 Bleed Position Range
	.		.	858.5 2.5 Bleed Position Range	858.5 2.5 Bleed Position Range
	.		.	858.5 T3 Out of Range	858.5 T3 Out of Range
	.		.		858.5 T3 Out of Range
	.		.	858.5 T2.95 Range, Stability Bleed (LH)	858.5 T2.95 Range, Stability Bleed
	.		.	858.5 Engine Oil Temperature Range	858.5 EGT Out of Range
	.		.	858.5 Engine Oil Temperature Range	
	.		.	858.5 Oil Filter Delta P Switch Range	
22:24:33	859		.		
22:24:54	880 Master Caution		.		
			885		
22:25:00			886		
22:25:39	925 Master Caution		.		
22:25:41	927		.		
			.		
			945		
22:26:00			946		
22:26:06	952 Master Caution		.		
			.		
22:26:47	993 Master Caution		.		
	.		.		
22:26:51	997		.		
			.		
22:26:53	999 Master Caution		.		
			.		
22:26:58	1004 Master Caution		.		
22:26:59	1005		1005		

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UTC Time	DFDR Data	Airbus Notes	Airman Data / PFR Faults (Post Flight Report)	EEC: Channel A	ECC: Channel B
22:27:00			1006		
22:27:07	1013 Master Caution		.		
22:27:08	1014		.		
			.		
22:27:11	1017 Master Caution		.		
			.		
22:27:15	1021 Master Caution		.		
			.		
22:27:18	1024 Master Caution		.		
22:27:19	1025		.		
			.		
22:27:27	1033 Master Caution		.		
22:27:29			.	1035 Engine Oil Temperature Range	
22:27:31	1037 Master Caution		.		
22:27:33	1039		.		
			.		
22:27:37	1043 Master Caution		.		
			.		
22:27:41	1047 Master Caution		.		
			.		
22:27:44	1050 Master Caution		.		
			.		
22:27:51	1057 Master Caution		.		
22:27:53	1059		.		
			.		
22:27:58	1064 Master Caution		.		
			1065		
22:28:00			1066		
22:28:01	1067 Master Caution		.		
			.		
22:28:09	1075 Master Caution		.		
22:28:16	1082		.		
			.		
22:28:24	1090 Master Caution		.		
			.		
22:28:26	1092 Master Caution		.		
			1125		
22:29:00			1126		
			.		
			1185		
22:30:00			1186		
			.		
			1245		

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UTC Time	DFDR Data	Airbus Notes	Airman Data / PFR Faults (Post Flight Report)	EEC: Channel A	ECC: Channel B
22:31:00			1246 FLP1 Y HYD PRESS OFF .		
22:32:00			1305 1306 .		
22:33:00			1365 1366 .		
22:34:00			1425		
22:34:29	1455 FWC ON		1426		
22:34:47	1473 Master Caution		.		
22:34:48	1474		.		
22:35:00			###		
22:35:14	Eng 2 Erroneous Data		1486 HYD Y RSVR LO AIR PR .		
22:35:37	1523 Master Caution		.		
22:35:38	1524		.		
22:36:00	.		1545		
22:36:42	1588		1546 EIVMU2(1KS2) .		
22:36:44	1590 Master Caution		ELEC C/B TRIPPED		
22:36:45	.		ENG 2 IGN A FAULT	1591 FMU Overspeed Solenoid	1591 FMU Overspeed Solenoid
22:36:46	.		.	1592 FMU SOV Position Range	1592 FMU SOV Position Range
22:36:47	1593		.		
22:36:54	1600 Master Caution		.		
22:36:56	1602		.		
			1605		

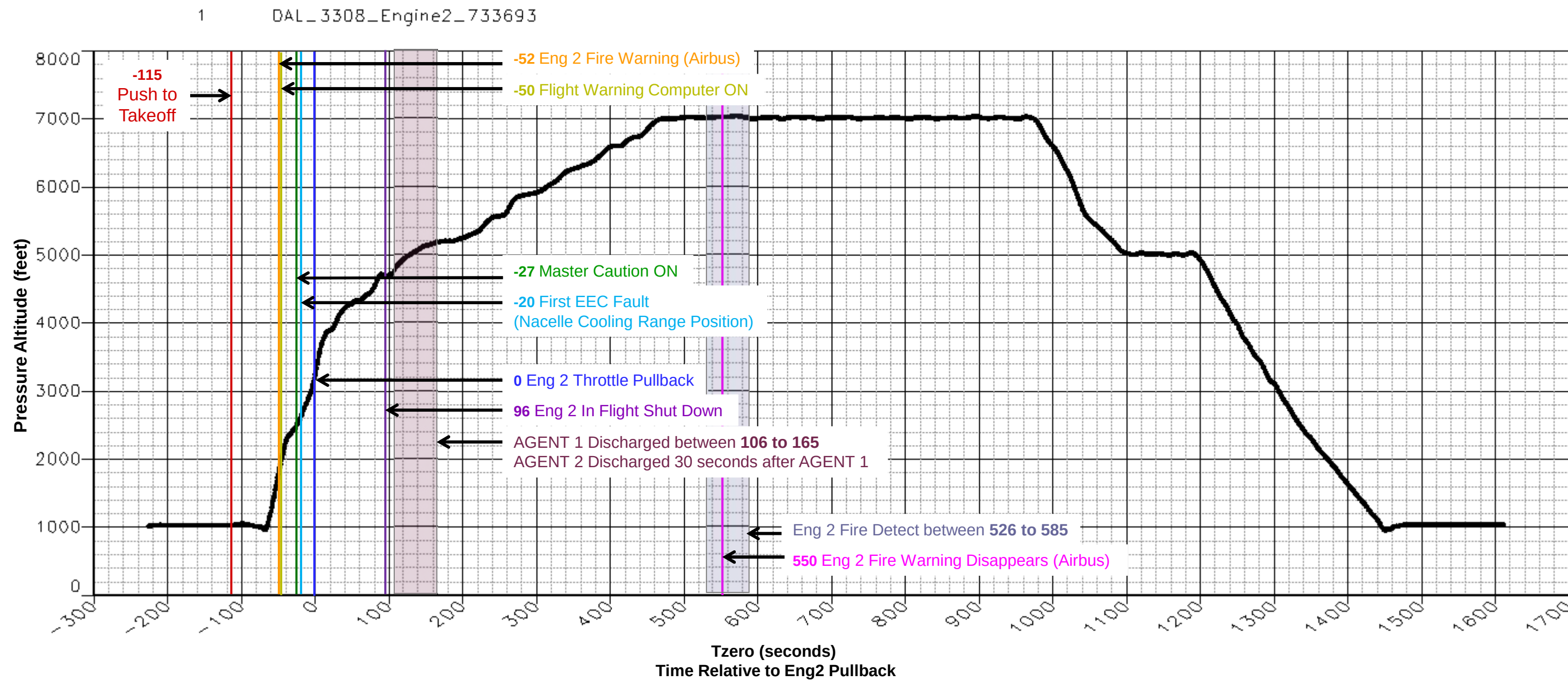
* AIRMAN / PFR faults recorded to the nearest minute.
Order shown does not reflect true sequence.

Delta Airlines N806NW Engine 2 P733603

Summary Plots of April 18th 2018 Event

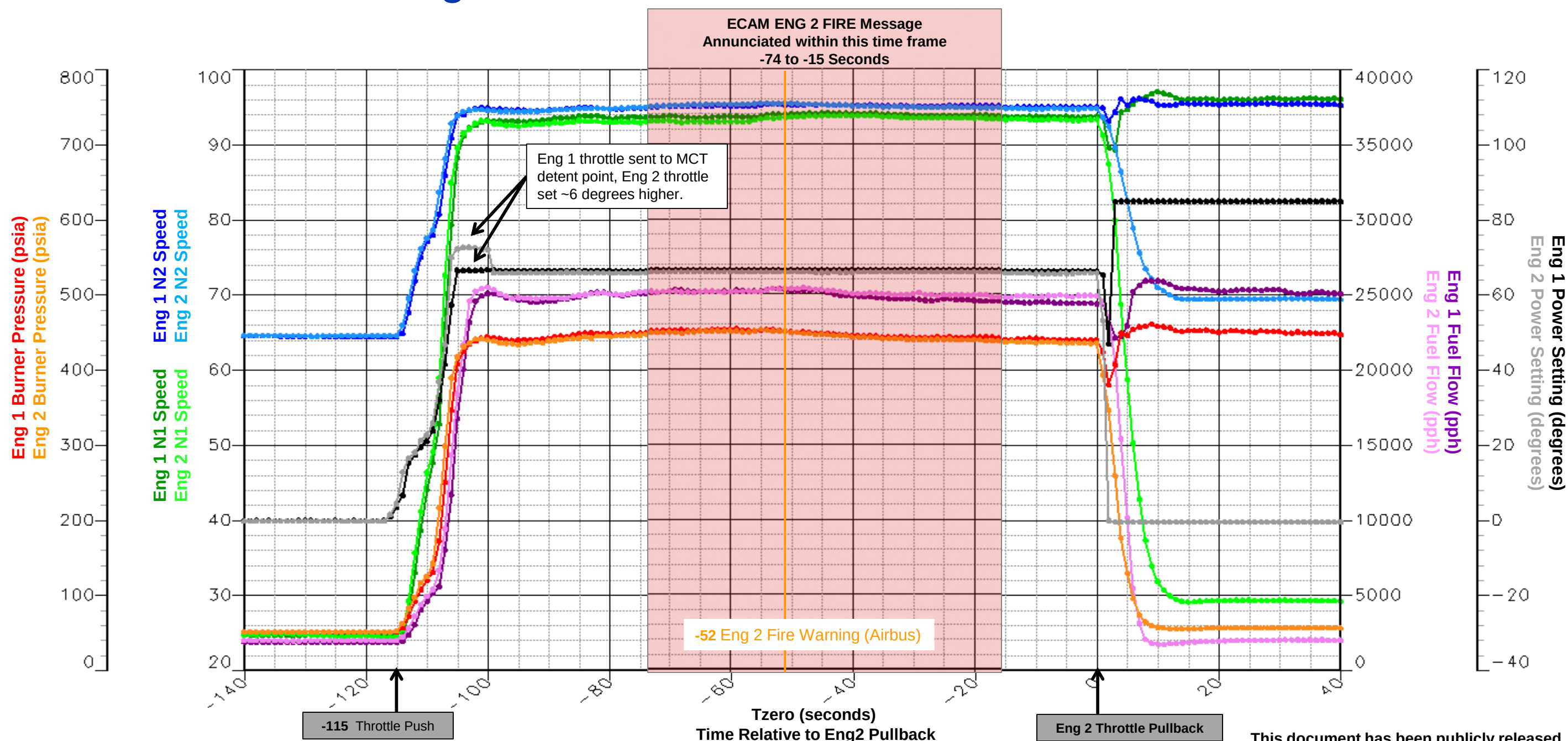
Delta Airlines N806NW Engine 2 P733603

Altitude Trace



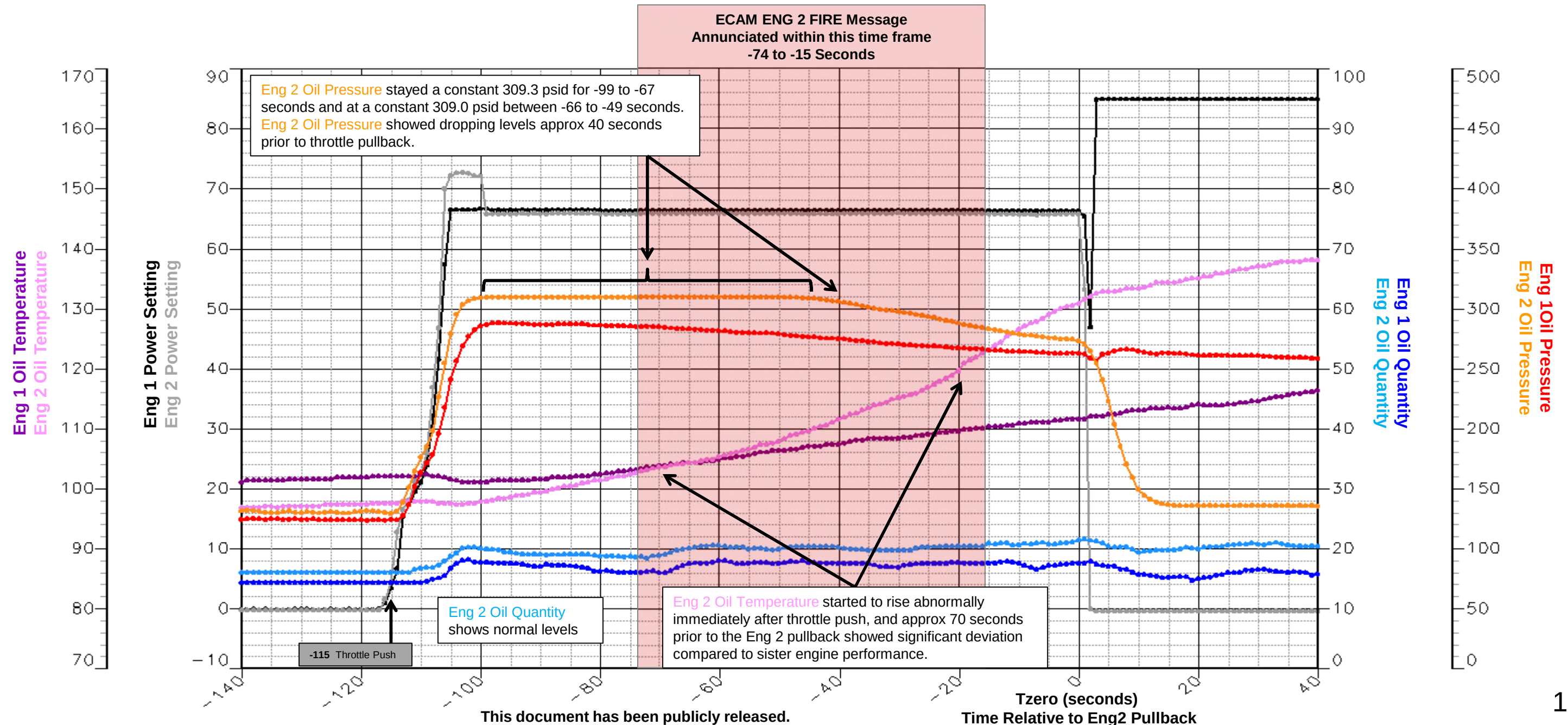
Delta Airlines N806NW Engine 2 P733603

Event and Sister Engine Performance

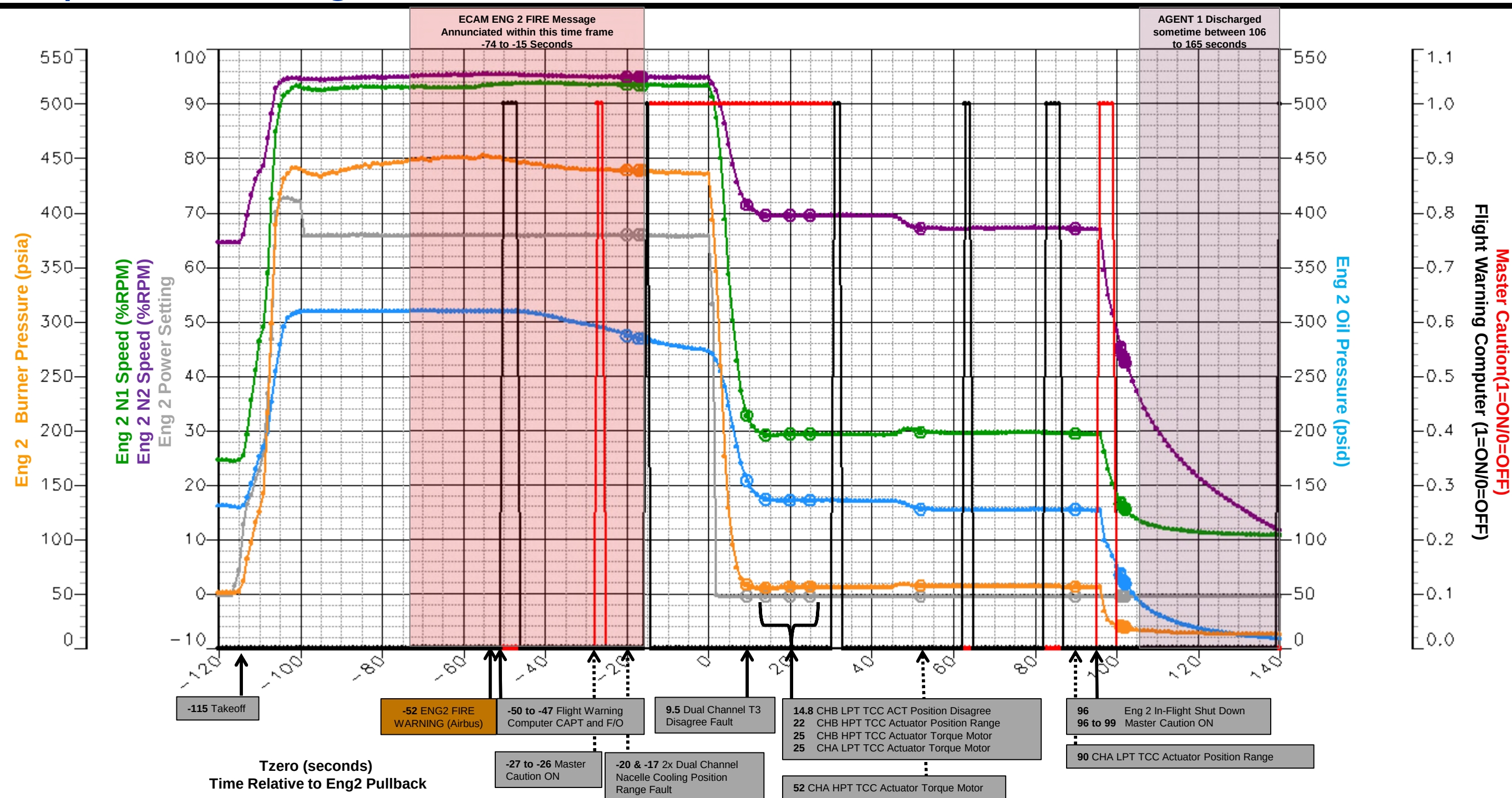


Delta Airlines N806NW Engine 2 P733603

Oil Parameters show deviation from Sister Engine After Takeoff



Sequence of Engine 2 Performance, EEC Faults, PFR Faults

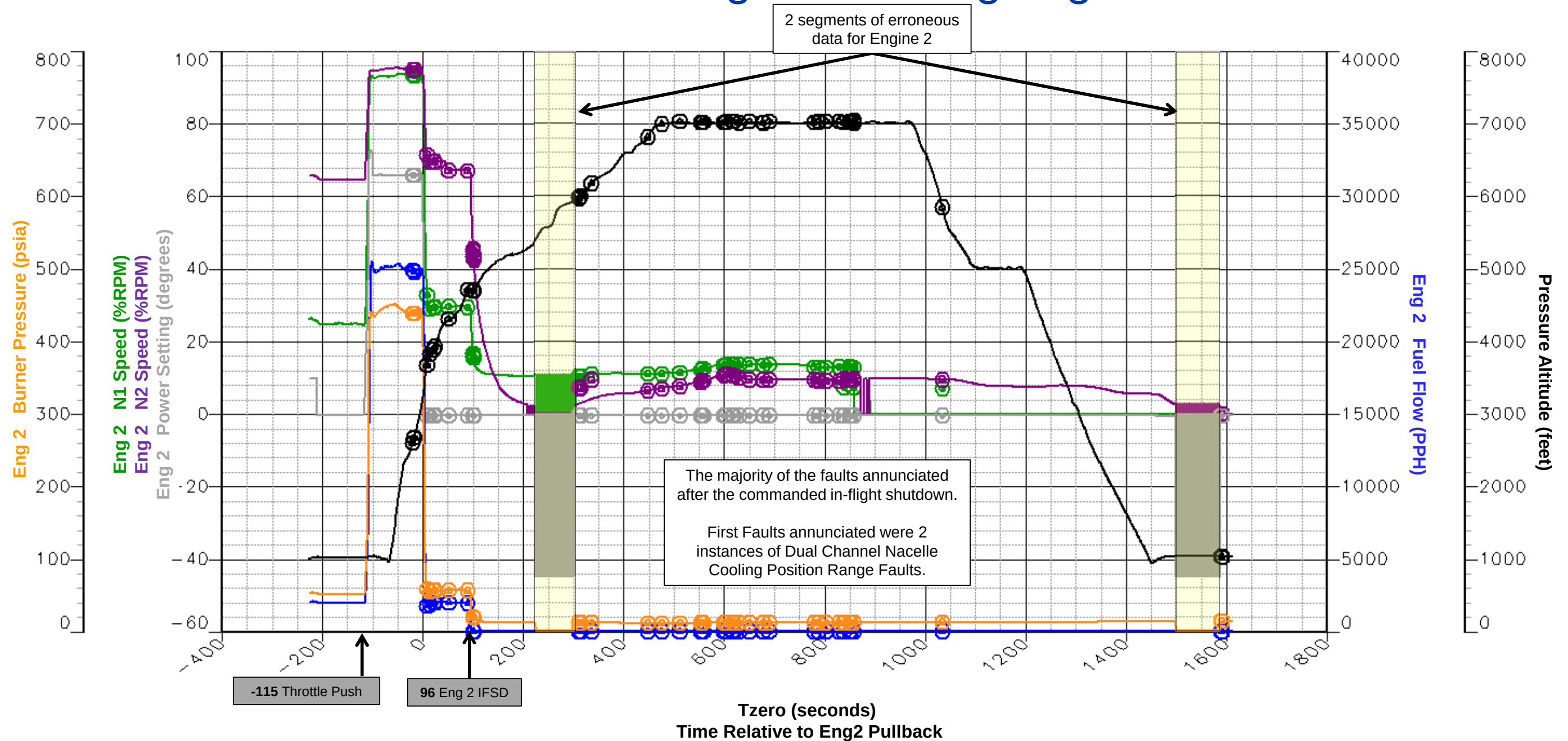


Delta Airlines N806NW Engine 2 P733603

EEC Fault Dump & DFDR Data

Delta Airlines N806NW Engine 2 P733603

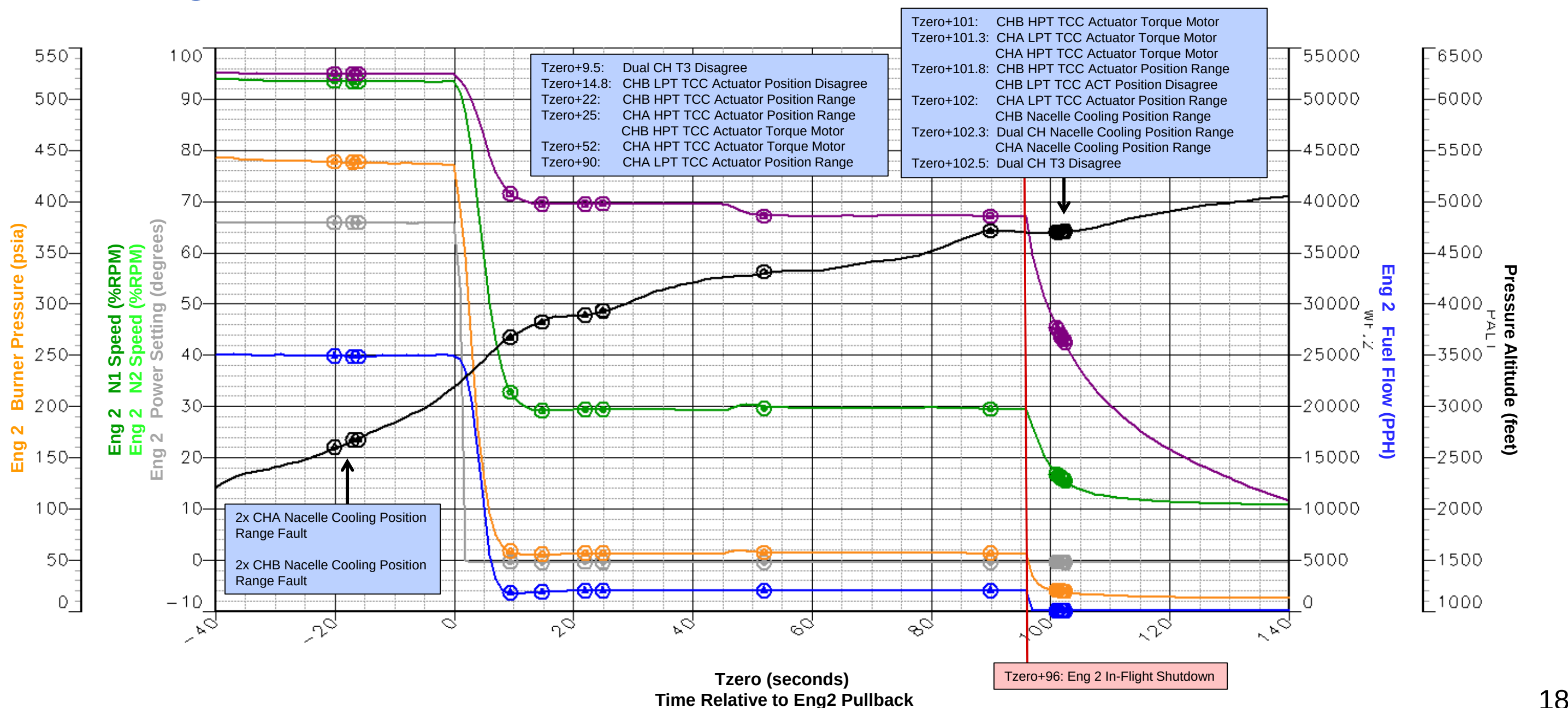
53 CHA and 49 CHB Faults on Engine 2 during Flight DAL30



Delta Airlines N806NW Engine 2 P733603

First Engine 2 Faults Announced

NOTE: ECC Faults are data matched with parametric data available from the EEC Fault Dump. Time stamp is an approximation that best matches engine performance; subject to change if more data becomes available.



Delta Airlines N806NW Engine 2 P733603

BACKUP: AIRMAN Printout

Airman / PFR Faults

CMS:PFR_TAB

Fault Tracking	Phase	Date Time	ATA	Source	Title	Class	Occurrence History	Priority	Work	Note
REPETITIVE	02-ENG START	18 Apr 18 - 21:58	2163		[MAINTENANCE STATUS CAB TEMP]		X .XXXXXXXXX . .XXX			
					[null]					
OCC / REP	02-ENG START	18 Apr 18 - 21:58	2400		[MAINTENANCE STATUS EPGS]		X .XXXXXXXXX . .XXX			
					[null]					
	05-LIFT OFF	18 Apr 18 - 22:09	2621		[ENG 2 FIRE]		X	High		
	06-CRUISE	18 Apr 18 - 22:12	262141	FDU2	[BTL1 ENG2(1WE2)/ FDU2(1WD2)]	1	X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:10	2210		[AUTO FLT AP OFF]		X	Medium		
	06-CRUISE	18 Apr 18 - 22:10	228300	AFS	[RLY PWR SPLIT (22CB)]	1	X	High		
					[null]					
	06-CRUISE	18 Apr 18 - 22:10	2422		[ELEC GEN 2 FAULT]		X	High		
OCCURRENCE	06-CRUISE	18 Apr 18 - 22:10	2421		[ELEC IDG 2 OIL LO PR]		X	Medium		
	06-CRUISE	18 Apr 18 - 22:10	2421		[ELEC IDG 2 OIL SYS FAULT]		X	High		
	06-CRUISE	18 Apr 18 - 22:10	242151	EPGS	[IDG2(E2-4000XU)GEN CT/ GCU2(1XU2)]	1	X			
	06-CRUISE	18 Apr 18 - 22:10	240000	DMC2	[POWER SUPPLY INTERRUPT]	1	X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:10	7321		[MAINTENANCE STATUS EEC 2A]		X			
	06-CRUISE	18 Apr 18 - 22:10	7321		[MAINTENANCE STATUS EEC 2B]		X			
OCCURRENCE	06-CRUISE	18 Apr 18 - 22:10	752611	EEC2A	[NAC COOL VLV(E2-4511KS)/WRG-EEC J4 TO VLV POS]	2	X			
	06-CRUISE	18 Apr 18 - 22:11	732134	DMC3	[EEC(E2-4000KS)]	1	X			
	06-CRUISE	18 Apr 18 - 22:14	732134	AFS	[EEC(E2-4000KS)]	1	...X.....X			
	06-CRUISE	18 Apr 18 - 22:19	7325		[ENG 2 MINOR FAULT]		X	Medium		
	06-CRUISE	18 Apr 18 - 22:19	753112	EEC2B	[SVA(E2-4040KS)/WRG-EEC J12 TO SVA POS SIG]	1	X			
	06-CRUISE	18 Apr 18 - 22:20	7325		[ENG 2 FADEC SYS FAULT]		X	High		
OCCURRENCE	06-CRUISE	18 Apr 18 - 22:20	732112	EEC2B	[FMU(E2-4071KS)/WRG-EEC J12 TO FMV LVDT POS]	1	X			
	06-CRUISE	18 Apr 18 - 22:20	753112	EEC2A	[SVA(E2-4040KS)/ WRG-EEC J2 TO SVA TM]	1	X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:11	7100		[ENG 2 SHUT DOWN]		X	High		
					[null]					
OCCURRENCE	06-CRUISE	18 Apr 18 - 22:12	7325		[ENG 2 FADEC A FAULT]		X			

Airman / PFR Faults

Fault Tracking	Phase	Date Time	ATA	Source	Title	Class	Occurrence History	Priority	Work	Note
	06-CRUISE	18 Apr 18 - 22:12	773140	EIVMU2	[RCC (E2-4006EV)/EIVMU2 (1KS2)]	1	X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:13	233334	CIDS2	[PES CTRL (8MK)/ DIR2 (102RH)]	1	X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:13	291151	HSMU	[Y ENG2 PMP (E2-4000JG2)/Y HYD RSVR]	1	X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:15	7932		[ADVISORY ENG2 OIL TEMPERATURE]		X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:15	237334	CIDS2	[POWER SUPPLY INTERRUPT]	1	X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:19	2612		[ENG 2 FIRE DET FAULT]		X	High		
	06-CRUISE	18 Apr 18 - 22:19	2612		[ENG 2 FIRE LOOP B FAULT]		X	High		
	06-CRUISE	18 Apr 18 - 22:19	261215	FDU2	[ENG2 FIRE LOOP B/ FDU2(1WD2)]	1	X			
	06-CRUISE	18 Apr 18 - 22:20	2612		[ENG 2 FIRE LOOP A FAULT]		X	High		
					[null]					
OCCURRENCE	06-CRUISE	18 Apr 18 - 22:20	7720		[ENG 2 EGT OVER LIMIT]		X	High		
					[null]					
	06-CRUISE	18 Apr 18 - 22:20	793111	EEC2A	[OIL QTY XMTR(E2-4050KS)]	1	X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:23	291134	HSMU	[HSMU (1JG) DISCRETE INPUT S207]	1	X			
OCCURRENCE	06-CRUISE	18 Apr 18 - 22:23	2913		[HYD Y RSVR LO LVL]		X	High		
	06-CRUISE	18 Apr 18 - 22:24	2913		[HYD Y SYS LO PR]		X	High		
	06-CRUISE	18 Apr 18 - 22:24	292351	HSMU	[Y ELEC PMP (1JJ) / Y HYDRSVR / Y CUDU (2JJ)]	1	X			
					[null]					
	06-CRUISE	18 Apr 18 - 22:24	7541		[ADVISORY ENG2 NACELLE TEMPERATURE]		X			
	06-CRUISE	18 Apr 18 - 22:24	7334		[ENG INCREASED FUEL BURN]		X			
	06-CRUISE	18 Apr 18 - 22:24	752415	EEC2B	[TCC ACTR(E2-4508KS)/WRG:EEC J10 TO HPT TM]	1	X			
					[null]					
OCCURRENCE	06-CRUISE	18 Apr 18 - 22:24	7100		[ENG 2 CTL SYS FAULT]		X	High		
					[null]					

[illegible]

Fault Tracking	Phase	Date Time	ATA	Source	Title	Class	Occurrence History	Priority	Work	Note
	09-80 KTS	18 Apr 18 - 22:35	2913		[HYD Y RSVR LO AIR PR]		x	High		
					[null]					
	09-80 KTS	18 Apr 18 - 22:36	732534	EIVMU2	[EIVMU2 (1KS2)]	1	x			
					[null]					
	09-80 KTS	18 Apr 18 - 22:36	2400		[ELEC C/B TRIPPED]		x	Medium		
					[null]					
OCCURRENCE	09-80 KTS	18 Apr 18 - 22:36	7400		[ENG 2 IGN A FAULT]		x	Low		
					[null]					