

EPCOR B.V.  
Bellsingel 41  
1119 NT Schiphol-Rijk  
Netherlands

EASA: NL.145.1326  
FAA CFRS: E45Y760Y  
VAT Code: NL 8082 47992B01



## APU Service Record

**Work Order** W0001219  
**Customer:** APOC Aviation  
**Cust Ref nr:**  
**Date** 04-Sep-2019  
**Prepared by** Vlemmens  
**Page:** 1 of 1

**Maintenance Performed In Accordance With**  
**Manual:** 49-26-95  
**Revision:** 12  
**Certification Level**  
Inspected / Tested

<b>APU Type</b> GTCP 131-9B	<b>APU P/N</b> 3800702-1	<b>APU S/N</b> P-5518	<b>APU Series</b> 15
TSN : 21079	TSO : 21079	TSR : 2995	CSN : 17937
			CSR : 3301
			CSO : 17937

The aircraft component identified above was inspected in accordance with current Civil Aviation Administration Regulations (See attached certificates) and is approved for return service. Pertinent details of work performed are on file at this agency under work order as indicted in this form.

### Traceable Life Limited / Life Controlled Parts

Part Number	Description	Serial Number	Accumulated Totals		Remaining
			Cycles	Hours	Cycles
3840165-4	Turbine Rotor Assembly Second Stage	14-156101-06136	3.301	2.995	26.699
3840310-3	1 St Turb Rotor Assy	14-156101-05498	3.301	2.995	26.699
3822504-3	Shaft, Turbine	04P01864	13.743	15.293	16.257
3822391-6	Compressor Rotor, Centrifugal E/c	040350102217	13.743	15.293	16.257

### Line Replaceable Units

Part Number	Description	Serial Number	Status
160550-1	Valve, Temperature Control- Outline	1621	Not Removed
160564-2	Cooler Oil	5515	Not Removed
3291214-2	Valve Outline, Apu Bleed Air, 3.50 Inch	752	Not Removed
3291238-2	Valve, Control, Surge	5992	Not Removed
3876287-1	Data Memory Module	GE 921	Not Removed
4131020-3	Lube Module	1657	Not Removed
3888058-5	Exciter, Ignition	990218010408	Not Removed
3886188-3	Actuator, Inlet Guide Vane Assembly	6238	Not Removed
441921-5	Fuel Control Unit	CUC14192	Inspected

Mechanic

Supervising Mechanic

Date



N/A

04 SEP 2019

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## SB List

**Customer:** APOC Aviation  
**Date printed:** 04-Sep-2019  
**Prepared by** Vlemmens  
**Page:** 1 of 1

**Work Order #:** W0001219  
**Part number:** 3800702-1  
**Serial number:** P-5518

Airworthiness Directive	Rev.	Description	Where Accomp.	When Accomp.
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*There are no Airworthiness Directives applicable at the time of this Service Bulletin record release date*

Service Bulletin	Rev.	Description	SB Status.	Where Accomp.	When Accomp.
49-7688	0	SB 49-7688 Replace Fuel Control Unit (FCU), Part No. 441921-4 with Part No. 441921-5.	Performed	EPCOR	03-Sep-2019

Mechanic

Supervising Mechanic

Date



N/A

04 SEP 2019

Proprietary information

Customer	Apoc	Test Date	28-Aug-2019
Work Order	W0001219	Sample Fuel SG	0.79
Engine P/N	3800702-1	Sample T Fuel (°C)	28.2
Engine S/N	P-5518	Fuel Type	Jet Fuel A1
Repair Type	Light	Oil Type	EX2380

PERFORMANCE SUMMARY						
PARAMETER		UNITS	DATA POINT 0002		DATA POINT 0003	
			2 PACK ECS - 700 HIGH + 60 KW		MES + 65 KW	
			LIMIT	ACTUAL	LIMIT	ACTUAL
PBCOR	BLEED PRESSURE	PSIA (BAR)	51.2 (3,53) MINIMUM	51.3	53.7 (3,70) MINIMUM	53.9
WBCOR	BLEED AIRFLOW	LB/MIN (KG/MIN)	155 (70,31) MINIMUM	156.1	N/A	138.8
TBCOR	BLEED TEMPERATURE	F (C)	445 (229) MAXIMUM	428.1	445 (229) MAXIMUM	437.6
EGTCOR	EXHAUST GAS TEMPERATURE	F (C)	1115 (601) MAXIMUM	1047	1105 (596) MAXIMUM	1043
WFCOR	FUEL CONSUMPTION	LB/HR (KG/SEC)	N/A	275.6	287.0 (0,0362) REFERENCE	270.4
NOTE : PERFORMANCE DATA ADJUSTED TO SEA LEVEL, 100F (38C), INSTALLED CONDITIONS. EGTCOR AND WFCOR ARE ALSO CORRECTED TO MINIMUM BLEED PRESSURE. WFCOR IS A REFERENCE-ONLY VALUE						

ECS OFFSET WORKSHEET (Step 8.D.(2))		
INITIAL PBCOR	PSIA	51.5
FINAL PBCOR	PSIA	51.4
INITIAL IGV POSITION	DEG	82
FINAL IGV POSITION	DEG	81.9
ECS_OFFSET ( FINAL IGV DEG - INITIAL IGV DEG )	DEG	-0.1

FLOW SENSOR TEST					
PARAMETER		STEP	UNITS	LIMITS	VALUE
WBCDNA	FLOW SENSOR TEST	8.E.(9) DATA POINT 0004	LB/MIN	47.6	49.1
				52.4	
WBCDNA	FLOW SENSOR TEST	8.E.(13)(a) DATA POINT 0005	LB/MIN	47.6	49.8
				52.4	
WC	FLOW SENSOR ACCURACY	8.E.(13)(b)	%	± 5	-1.2

PERFORMED TEST DETAILS			
SCV STABILITY TEST	STEP 8.F	STABLE	PASSED
MINIMUM SURGE MARGIN TEST	STEP 8.G	APU SURGE	PASSED
AC POWER START TIME	STEP 8.H.(1)(a)	SECONDS	42
DC POWER START TIME	STEP 8.H.(2)(a)	SECONDS	45
LOAD CYCLE STABILITY 96 KW	STEP 8.I.(4)	STABLE	PASSED
LOAD CYCLE STABILITY MES	STEP 8.I.(7)	STABLE	PASSED
LOAD CYCLE STABILITY MES + 96 KW	STEP 8.I.(10)	STABLE	PASSED
LOAD CYCLE STABILITY MES + 96 KW EGTCOR	STEP 8.I.(10)(10a)	MAX 1160 F	1106 F
LOAD CYCLE STABILITY RTL	STEP 8.I.(11)	STABLE	PASSED
TOTAL NUMBER OF STARTS DURING TEST	---	EA.	5
TOTAL OPERATING TIME DURING TEST	---	HOUR	1.34
APU FAULTS SEEN DURING TEST	---	N/A	1

Customer	Apoc	Test Date	28-Aug-2019
Work Order	W0001219	Sample Fuel SG	0.79
Engine P/N	3800702-1	Sample T Fuel (°C)	28.2
Engine S/N	P-5518	Fuel Type	Jet Fuel A1
Repair Type	Light	Oil Type	EX2380

STEP			8.D.(3)c	8.D.(4)g	8.D.(1)g
DIGITAL DATA POINT NUMBER			0002	0003	0001
PARAMETERS		UNITS	2 PCKS-700 ECS HIGH	MES	RTL
PBAR	BAROMETRIC PRESSURE	PSIA	14.7	14.7	14.7
T1	T1-APU INLET TEMPERATURE (AVG)	DEG F	81.8	81.8	80.1
TENIVA	UNIT INLET TEMPERATURE (T2)	DEG F	83.5	103.1	100.3
POIL	OIL PRESSURE (LUBE PUMP DISCHARGE)	PSIG	66.7	66.6	67.9
TOIL	OIL TEMPERATURE (LUBE PUMP DISCHARGE)	DEG F	180	182	176
PSGBX	GEARBOX PRESSURE-SUMP	inH2O	-0.9	-1.1	4
TFUEL	FUEL INLET TEMPERATURE	DEG F	82	81.4	77.6
PFUEL	FUEL INLET PRESSURE	PSIG	54	53.7	56.2
VIBGBA	UNIT VIBRATION-GEARBOX	IN/SEC Pk	0.18	0.18	0.19
VIBTHA	UNIT VIBRATION-TURBINE	IN/SEC Pk	0.2	0.17	0.19
VIBTHB	TURBINE BEARING CARRIER VIBRATION	IN/SEC Pk	2.13	2.16	2.57
XNL	SHAFT SPEED	RPM	48804	48804	48806
PIGV	INLET GUIDE VANE POSITION	DEGREE	81.8	90.1	22
PCDFD	COMPRESSOR DISCHARGE STATIC	PSIA	103.9	104.4	96.3
TCDFD	COMPRESSOR DISCHARGE	DEG F	611.4	612.1	589
TTDEA	TURBINE DISCHARGE TEMPERATURE #1	DEG F	953	967	690
TTDEB	TURBINE DISCHARGE TEMPERATURE #2 (UNIT EGT)	DEG F	940	971	663
EGT	LAB EGT (AVG)	DEG F	956	971	672
PS9	EXHAUST STATIC PRESSURE	PSIA	14.65	14.65	14.65
PBORFA	BLEED AIR ORIFICE PRESSURE	PSIA	47.6	54.6	N/A
TBORFA	BLEED AIR ORIFICE TEMPERATURE	DEG F	380.1	393	N/A
PDBORA	BLEED AIR ORIFICE DELTA PRESSURE	PSID	5.94	4.62	N/A
WB	BLEED AIRFLOW	LB/MIN	157.2	149.6	N/A
WBCDNA	CORRECTED DISCHARGE AIRFLOW	LB/MIN	58.2	49.8	N/A
PB	BLEED PRESSURE (AVG)	PSIA	51	57.5	N/A
TB	BLEED TEMPERATURE (AVG)	DEG F	397.7	419.4	N/A
WF	FUEL FLOW (AVG)	LB/HR	268.2	273.9	167
PWGEN	GENERATOR LOAD - POWER FACTOR =	KW	60.3	65.1	N/A
N/A = NOT NEEDED OR APPLICABLE					



Customer	Apoc	Test Date	28-Aug-2019
Work Order	W0001219	Sample Fuel SG	0.79
Engine P/N	3800702-1	Sample T Fuel (°C)	28.2
Engine S/N	P-5518	Fuel Type	Jet Fuel A1
Repair Type	Light	Oil Type	EX2380

CALCULATIONS					
		STEP	8.D.(3)c	8.D.(4)g	8.D.(1)g
		DIGITAL DATA POINT NUMBER	0002	0003	0001
PARAMETERS	UNITS	2 PCK-700 ECS HIGH	MES	RTL	
<b>GENSL</b> GENERATOR LOAD AT SEA LEVEL = PWGEN / (PCELL / 14.696)	KW	60.3	65.1	N/A	
APU DELTAP/DELTA = (PCELL - PS9) / (PCELL / 14.696)	PSIA	0.05	0.05	N/A	
BLEED PRESSURE AT SEA LEVEL = PB / (PCELL / 14.696)	PSIA	51.02	57.45	N/A	
<b>DELPB</b> BLEED PRESSURE LAPSE RATE	PSIA	1.9	-1.9	N/A	
INSTALLATION EFFECT ON BLEED	PSIA	-1.6	-1.6	N/A	
<b>PBCOR</b> BLEED PRESSURE CORRECTED TO SEA LEVEL, 100F (38C), INSTALLED	PSIA	51.3	53.9	N/A	
BLEED AIRFLOW AT SEA LEVEL = WB / (PCELL / 14.696)	LB/MIN	157.2	149.5	N/A	
<b>DELWB</b> BLEED FLOW LAPSE RATE CORRECTION	LB/MIN	2.9	-6.7	N/A	
INSTALLATION EFFECT ON WB	LB/MIN	-4	-4	N/A	
<b>WBCOR</b> BLEED AIRFLOW CORRECTED TO SEA LEVEL, 100F (38C)	LB/MIN	156.1	138.8	N/A	
<b>DELTB</b> BLEED TEMPERATURE LAPSE RATE	DEG F	30.4	18.2	N/A	
<b>TBCOR</b> BLEED TEMPERATURE CORRECTED TO SEA LEVEL, 100F (38C), INSTALLED	DEG F	428.1	437.6	N/A	
<b>DELEGT</b> EGT LAPSE RATE CORRECTION	DEG F	60.6	42.3	N/A	
APU DELTA P CORRECTION ON EGT = (33 * (PCELL - PS9) / (PCELL / 14.696)	DEG F	1.76	1.63	N/A	
INSTALLATION EFFECTS ON EGT	DEG F	30	30	N/A	
EXCESS BLEED PRESSURE CORRECTION ON EGT - (-10 * (PBCOR - PBREQ))	DEG F	-1	-2	N/A	
<b>EGTCOR</b> EGT CORRECTED TO SEA LEVEL, 100F (38C), INSTALLED, AT PBREQ	DEG F	1047	1043	N/A	
SEA LEVEL FUEL FLOW = (WF / PCELL / 14.696) * (FLHV / 18550)	LB/HR	268.9	274.7	N/A	
<b>DELWF</b> FUEL FLOW LAPSE RATE CORRECTION	LB/HR	6.2	-4.3	N/A	
APU DELTA P CORRECTIONS ON WF = (8 * (PCELL - PS9) / (PCELL / 14.696)	LB/HR	0.43	0.39	N/A	
INSTALLATION EFFECT ON WF	LB/HR	0.6	0.6	N/A	
EXCESS BLEED PRESSURE CORRECTION ON WF = (-4 * (PBCOR - PBREQ))	LB/HR	-0.55	-0.92	N/A	
<b>WFCOR</b> FUEL FLOW CORRECTED TO SEA LEVEL, 100F (38C), INSTALLED, AT PBREQ	LB/HR	275.6	270.4	N/A	
N/A = NOT NEEDED OR APPLICABLE					

Customer	Apoc	Test Date	28-Aug-2019
Work Order	W0001219	Sample Fuel SG	0.79
Engine P/N	3800702-1	Sample T Fuel (°C)	28.2
Engine S/N	P-5518	Fuel Type	Jet Fuel A1
Repair Type	Light	Oil Type	EX2380

**A/C COMPONENTS USED DURING TEST**

COMPONENT	MFR P/N	MFR S/N
ELECTRONIC CONTROL UNIT	3888394-222	126-F1936
START POWER UNIT	1151984-261 M1	078C-0309
STARTER CONVERTER UNIT	1152466-250	1152466-03153

**REPLACED LRUs FOR T/S**

COMPONENT	MFR P/N	REMOVED	INSTALLED
		MFR S/N	MFR S/N
Fuel Control Unit	441921-4	CUC12280	CUC14192

**FINDINGS - REMARKS**

*Fault: Fuel Control Unit failed on test. 351/22/00 Fuel Control Unit on arinc.*

*Action: Replaced FCU Pn: 441921-4 with inspected FCU Pn:441621-5 and Performed SB:49-7688 Rev. 0.*

**COMPLIANCE**

**APU Incoming Date :** 28-Aug-19

**Time:** 08:50

**APU Outgoing Date :** 28-Aug-19



**Time:** 18:30

1) We certify that above data are true and correct, and in addition, subject APU has successfully met all test requirements specified in APU EM Testing Chapter 49-26-95 Rev. 12 Dated Aug 17, 2018

2) APU functions and test parameters are ;

☒ ACCEPTED

☐ REJECTED

PERFORMED & INSPECTED BY	NAME & SURNAME	SIGNATURE/STAMP	DATE
TECHNICIAN	H.M. Kiflom	 H.M. Kiflom AUTH-535 EPCOR BV	28-Aug-2019
TECHNICIAN			
CONTROL	H.M. Kiflom	 H.M. Kiflom AUTH-535 EPCOR BV	28-Aug-2019