

MINIPACK 331-350C P-842



TSN/CSN: 4557/ 3656 TSLSV/CSLSV: 0 / 0

APU SHIPPED TO AEROTEC FOR EASA AD 2023-0057 AND 2023-0158 ACCOMPLISHMENT WITH TEST & CERTIFICATION

ALL DOCUMENT LINK: P-842



LAST SHOP VISIT

Approving Competent Authority Country IAA / IRELAND AUTH A		AUTHORISED RE	ELEASE CERTIF A FORM 1	3. Form Tracking AP028536			
4. Appro Name	oved Organisation e and Address:		Aerospace Dublin Aero	ospace Limited	Address Hangar 5 Dublin Airj Dublin Irels Telephone: +353 812	ind .	
6. Item	7. Description		8. Part No.	9. Oty	10. Serial No.	11. Status / Work	
1	1 APU, GTCP331-350C		3800454-6	1	P-842	Repaired	
			The second secon	1 5		roved for return to service under certificate no. 3DB Y883 B	
13a. Certifies that the items identified above were manufactured in conformity to: approved design data and are in condition for safe operation non-approved design data specified in block 12				Certifies that unle		Other regulation specified in block 12, block 12, the work identified in block 11 and described a with Part 145 and in respect to that work, the items are	
13b. Aut	thorised Signature:		13c. Approval/Authorisation No	14b. Authorised Sig	gnature: 0.52. 0.599	14c, Certificate / Approval Ref. No. IE.145.062	
13d. Nar	ne		13e. Date (dd mmm yyyy) :	14d. Name / Charles Mur	14d. Name 14d. Date (dd mmm yyyy) Charles Murphy 28 Jul 2020		
This co	e the user / installer performer airworthiness authorit	matically constitute au forms work in accorda ity accepts items from d 14a do not constitute	e installation certification. In all cases aircraft r			block $_{1}$, it is essential that the user/installer ensures that on issued in accordance with the national regulations by	

EASA FORELL -MF/CAO/143 Issue 3





Incoming Inspection Report

331-350C S/N:P-842

Date: 25/07/2020

Customer:	Date Received: 06/07/2020	Customer Repair Order No.: RO2104
Part No.:	Serial No.:	Work Order No.:
3800454-6	P-842	AP028536
TSN / CSN:	TSO / CSO:	TSLSV / CSLSV:
4,556.2 / 3,650	Unknown	Unknown

1 General Condition of APU upon Receipt:

Is there damage evident externally on the APU?	No
Is there visible damage or wear to the Load Compressor Section?	No
Is there visible damage or wear to the Engine Compressor Section?	No
Is there visible damage or wear to the Turbine Section?	Yes
Is there visible damage or wear to the Gearbox?	No
When the APU is rotated is there any dragging, snagging or noise?	No
Is there evidence of an oil leakage?	No
Is there any metallic debris in the main oil filter?	No
Is there any metallic debris evident on the Magnetic Chip Detectors?	No
Are any additional parts supplied or any significant parts missing?	Yes

2 General Comments on Incoming Inspection:

The APU was received by Dublin Aerospace in a wooden shipping container. The logbook was not received. Only parts with significant findings are detailed in this report.

3 Engine Compressor Section:

3.1 1st Stage Engine Compressor Impeller: There is no visible damage to the impeller blades.

4 Turbine Section:

- 4.1 Combustion Chamber: There is no visible damage to the combustion chamber.
- 4.2 1st Stage Turbine Stator: There is no visible damage to the turbine stator vanes. Sand deposits are present on the leading edges of the vanes.
- 4.3 1st Stage Turbine Rotor: There is heat erosion and minor material loss on a number of the blade tips.
- 4.4 3rd Stage Turbine Rotor: There is no visible damage to the turbine blades.

5 Load Compressor Section:

- 5.1 Inlet Guide Vanes: There is no visible damage to the IGVs.
- 5.2 Load Compressor Impeller: There is no visible damage to the impeller blades.





Incoming Inspection Report 331-350C S/N:P-842

Date: 25/07/2020

Gearbox:

6.1 Gearbox Assembly: There is no visible damage to the gearbox assembly.

7 LRU's:

- 7.1 Surge Control Valve: The unit was found to be unserviceable during APU test.
- 7.2 Load Control Valve: The unit was not received with the APU.
- 7.3 Starter Motor: The terminal insulation boot was not received with the APU.

8 Digital Images:



Picture 1: 1st Stage Engine Compressor Impeller



Picture 2: 1st Stage Turbine Stator Vane





Picture 4: 1st Stage Turbine Rotor Blades





Incoming Inspection Report 331-350C S/N:P-842

Date: 25/07/2020



Picture 5: 1st Stage Turbine Rotor Blades



Picture 6: 1st Stage Turbine Rotor Blades





Conclusions:

Heat erosion and minor material loss are present on some of the 1st stage turbine rotor blades. All wear is within AMM limits.

The load control valve and starter motor terminal insulation boot were not received with the APU.

The surge control valve was found to be faulty during APU test.

Load control valve and surge control valve have been supplied by the customer and the APU has passed all performance tests.

10 Recommended Workscope:

Dublin Aerospace recommends the missing parts are replaced and the APU is certified and returned to the customer.



BSI REPORT

1.Approving Com	Petent Authority/Country EASA	2. AUTHORISI	3. Form Tracking Number CL1370 E 5. Work Order/Contract/Invoice PO 1753		
4. Approved Orga	nisation Name and Address: APMS Aviation Limited.	L Hangar K4, Cotswold Airport, Gloucestershire, GL7 6BA United Kingdom			
6. Item	7. Description	8. Part No.	9. Qty.	10. Serial No.	11. Status / Work
One	Honeywell APU	3800454-6 , GTCP 331-350C	One	P-842	Inspected/Tested

NOTE: Borescope Inspection Plugs / Blanks are not Removed or Reinstalled by APMS

Complete gas path borescope inspection performed I.A.W. the procedures defined in the Airbus A330 AMM Rev. 81 dated 01 Jan 2022, chapter 49-20-00, tasks 49-20-00-290-809-A02, 49-20-00-290-810-A & 49-20-00-290-811-A.

APU found acceptable to the Borescope inspection limits of the above referenced technical data without restriction.

APU running times : TSN 4,556.8 hrs CSN 3,655 cy

+3a Certifies that the items identified above w approved design data and are in co non-approved data specified in bloc	ndition for safe operation	14a. ■ Part-145.A.50 Release to Service ☐ Other regulation specified in Block 12 Certifies that unless otherwise specified in block 12, the work identified in block 11 and described in block 12 was accomplished in accordance with Part-145 and in respect to that work the items are considered ready for release to service.			
13b. Authorised Signature	13c. Appreval/Authorisation Number	14b. Authorised Signature	14c. Certificate/Approval Number EASA.UK.145.01272		
13d.Name	13e. Deto (d/m/y)	14d. Name Chris Loosmore	14e. Date (dd/mmm/yyyy) 10-NOV-2022		

This certificate does not automatically constitute authority to install the item(s)

Where the user / installer performs work in accordance with regulations of an airworthiness authority different than the airworthiness authority specified in block 1, it is essential that the user / installer ensures that his / her airworthiness authority accepts items from the airworthiness authority specified in block 1.

Statements in blocks 13a and 14a do not constitute installation certification. In all cases aircraft maintenance records shall contain an installation certification issued in accordance with the national regulations by the user / installer before the aircraft may be flown.

EASA Form 1 — MF/CAO/145 Issue 3





Borescope Inspection Report

Ref: CL1370-P842-10NOV202

A.P.U. Type: Honeywell GTCP 331-350C



A.P.U. Serial No.: P 842

APMS Aviation Ltd

Hanger K4, Cotswold Airport, Gloucestershire, GL7 68A, United Kingdom. www.apmsaviation.com

(GTCP331-350 : Issue 3 - Nov2021)





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- Third Stage Turbine Nozzle Vanes
- Third Stage Turbine Blades
- Turbine Bearing Support Assembly

Section 5

General Comments & Recommendations

The complete video borescope findings are recorded and available on the USB Card supplied or by download via the file transfer link if provided.





Section 1

General Information

A.P.U. Type: Honeywell GTCP 331-350C

Aircraft: Airbus A330 Reg/MSN/: Not installed.

APU S/N	P-842
Rating	n/a
TSN	4,556.8
TSLSV	n/a
CSN	3,655
CSLSV	n/a

Inspection Details:

Date: 10-11-2022

Purchase Order number: PO 1753

Reason For Inspection: Pre-sale condition review.

Technical Reference Data Used:

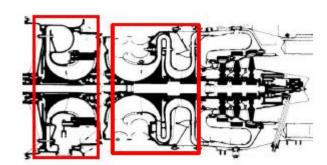
Publication Name	Revision Number	Revision Date
Airbus A330 AMM	81	01 Jan 2022

Borescope Inspection Procedures Contained in ATA Section(s): 49-20-00



Section 2

- Load Compressor & IGVs.
- Power Section Compressor St1.
- Power Section Compressor St2.



Inspection Findings:

Inlet Guide Vanes: "IGV inspection not required according AMM" Observed condition:

No significant defects noted.

Load Compressor Impeller (11 Blades):

No significant defects noted

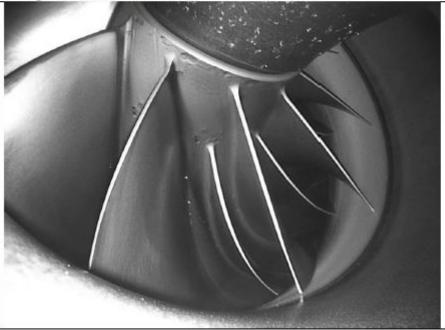


Photo included for info only.



Power Section Impeller Stg.1 (17 Blades):

No significant defects noted.



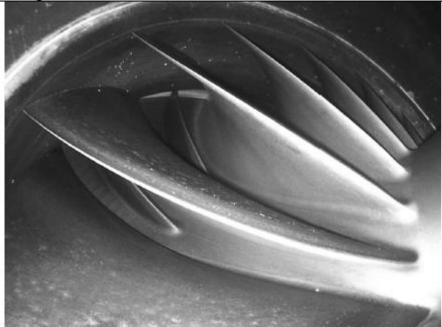


Photo included for info only.

Power Section Impeller Stg.2 (21 Blades): No significant defects noted.

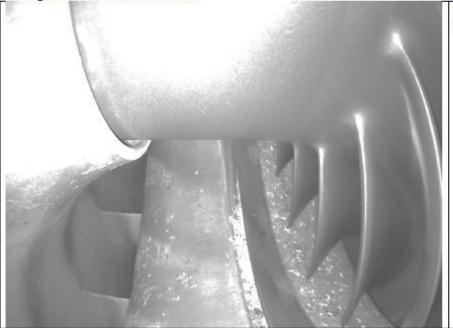


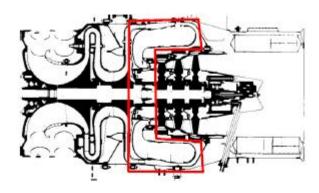
Photo included for info only.





Section 3

- Combustor
- First Stage Turbine Nozzle Guide Vanes



Inspection Findings:

Combustor:

Minor coating loss noted. All within Reference Data normal service limits.



Photo included for info only.



First Stage Turbine Nozzle:

Minor coating loss noted. All within Reference Data normal service

limits.





Photo included for info only.

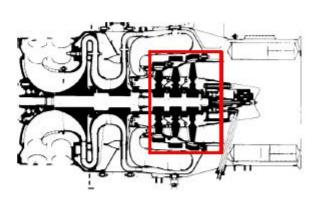
General Observations – Combustion Section : No significant defects noted.





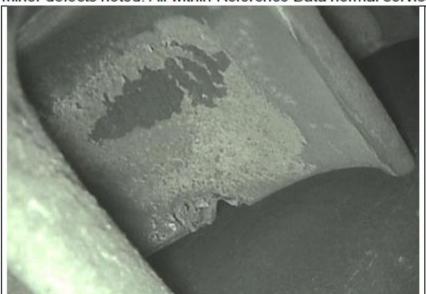
Section 4

- First Stage Turbine Blades
- Third Stage Turbine Nozzle Vanes
- Third Stage Turbine Blades
- Turbine Bearing Support Assembly



Inspection Findings:

First Stage Turbine Blades : Minor defects noted. All within Reference Data normal service limits.

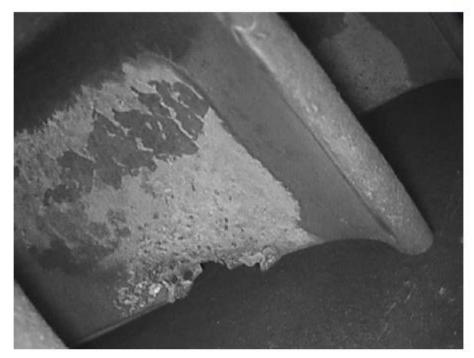


As can be seen opposite and below. Two blades exhibit erosion in the tip mid span area.

Both areas of erosion are in the tip area and can be considered acceptable.







Third Stage Turbine Vanes : No significant defects noted.

Third Stage Turbine Blades: No significant defects noted.







View included for info only.

Turbine Bearing Support Assembly: No significant defects noted.

General Observations – Turbine Section : No significant defects noted.





Section 5

General Comments:

All inspected components found to be in an acceptable general condition.

No significant mechanical defects were noted.

Recommendations:

None.

Inspection Performed and Report Prepared by :

Inspector: Chris Loosmore

Date: 11th November 2022

IMPORTANT NOTICE

The content of this report is based on attentive inspection and review within the capabilities of the inspection equipment used (as recommended by the OEM) and in accordance with documentation and procedures noted in Section 1. It is exclusive of any damage not detectable without removal and disassembly of the unit. It is believed to be a true representation of the engine condition at the specific time of inspection and prior to any further operation. This report is submitted in confidence to the above named client and is without responsibility to others to whom it may be shown.



TEST REPORT

APU Part No. 3800454-6

ECU Part No. 3888394-210102 ECU Serial No. 361 SPU Part No. 1152464-265

SCU Part No. 115466-250

Airflow Measuring Section No.

Model No. GTCP331-350C Engine Serial # P-842

SPU Serial No. 1152464-01089 Work Scope

SCU Serial No. 115466-01128 Repair Limit Medium

Work Order

Comment

REPAIR

AP028536

ATA No. 49-26-11

Date 20 Jul 2020

Rev No. 16

TR No. 49-27

TEST APTER REPAIR

UNITS

RECORD

TOTAL NUMBER OF STARTS

NO.

TOTAL OPERATING TIME

HOUR

00:43:56.99

NO LOAD BLEED DUCT PRESSURE

PSIG 4.0 PSIG MAX WHEN

POSITION - 82 DEGREE NOT APPLICABLE WHEN

IGV POSITION - 50

DEGREE

CORRECTED DISCHARGE FLOW AT SCV

CRACKPOINT

PPM 110.5 PPM

122.4

AUTOMATIC START

SEC 70 SEC MAX

STARTER CUT OUT

SEC 40 SEC MAX

PRE-TEST

LRU FAULTS OBSERVED PARAGRAPH 2.8.(2)(c) and (d)

3.A. (2) (L)

POST-TEST LRU FAULTS OBSERVED: (paragraph 3.A. (9) (e))

NONE

ENTER ECS_OFFSET (calculated ECS IGV offset Adjustment) COMPLETED

RECORD ECS-OFFSET calculated ECS IGV offset Adjustment

into DMM (per paragraph 3.A. (10))

INITIALIZATION OF DMM PROPERLY COMPLETED

COMPLETED ACCEPT

FUEL SYSTEM PRESERVED

YES

UNIT STATUS

Technician (Sign/Date):

Deren Benfon 20/7/2020 JRophe 20/7/2020

Supervisor (Sign/Date):



GTCP331-350C perf.log	10	MINE TO A					
APU Part No. 3800454-6	Model No. DT	CP331-350C	Engine Se	rial # P-842	Date 20	Jul 2020	
	moer no. or		angline se		2300 21		
DESCRIPTION	UNITS	Prelim	Bleed Valve	Surge Valve	No Load	ECS	MES
Barometer	psia	14.776	14.775	14.774	14.772	14.775	14.776
Inlet	pela	14.85	14.84	14.84	24.84	14.84	14.84
Compressor Discharge	bar	0.01	0.01	0.01	0.01	0.01	0.01
Bleed .	peia	14.86	15.58	54.02	14.73	52.94	55.02
Orifice Inlet	psia	14.79	15.58	51.37	14.78	50.35	53.65
Orifice Differential	in H2O	-0.03	-0.04	30.29	-0.03	29.71	17.52
Gearcase	psia	14.78	14.86	14.86	14.67	14.88	14.88
011	psig	0.2	61.4	61.5	61.5	61.4	61.3
PS9-1 Exhaust Static	psia	14.77	14.51	14.42	34.50	14.42	14.49
Dearbox	ips	-0.005	0.100	0.075	0.095	0.075	0.075
Turbine	ips	0.000	0.195	0.176	0.199	0.189	0.192
Cooling Fan	ips	-0.017	0.361	0.380	0.329	0.370	0.388
Eng Speed 1	rpm	1	41720	43724	41724	41720	41714
Eng Speed 2	rpm	1	41727	41709	41730	41723	41707
Eng Speed	rpm	1	41736	41729	41744	41742	41723
Bellmouth 1	deg P	71.0	69.0	72.6	69.1	74.0	76.8
Bellmouth 2	deg F	70.1	68.8	72.1	69.4	73.9	76.3
Belimouth 3	deg P	72.4	70.9	71.6	70.1	75.8	77.0
Bellmouth 4	deg F	180030.2	159214.5	164313.5	122688.0	175176.9	137086.9
Bellmouth 5	deg F	71.1	76.9	77.2	76.3	80.2	81.1
Bellmouth 6	deg F	70.3	69.7	73.1	68.5	74.7	75.0
Bellmouth 7	deg P	73.2	70.5	72.6	69.1	74.6	76.3
Bellmouth 8	deg F	71.9	70.5	72.6	71.3	74.2	70.9
Bellmouth Avg	deg F	71.4	70.9	73.4	70.5	75.4	77.4
EGT 1	deg F	439.5	680.7	959.3	668.3	946.3	944.2
EGT 2	deg F	475.1	678.0	915.7	665.2	904.0	902.4
EGT Unit Avg	deg F	457.3	679.6	937.5	666.8	925.2	923.3
EGT Unit Spread	deg F	35.3	2.7	43.6	3.1	42.3	41.7
EGT 6501	deg F	447.0	716.4	921.5	665.3	911.3	909.8
EGT 6502	deg F	454.1	715.8	973.8	683.0	959.4	959.4
EGT 6503	deg F	456.9	722.6	987.6	693.2	985.8	949.5
EGT 6504	deg F	449.0	728.0	979.9	703.1	967.7	958.1
DOT 6505	deg P	477.4	716.6	974.3	683.6	958.1	963.4
EGT 6506	deg F	454.1	718.3	971.2	689.9	957.3	958.7
EGT 6507	deg F	470.4	691.9	948.5	656.8	939.5	943.3
EGT 6508	deg F	466.9	664.8	962.1	640.4	946.3	947.2
BGT 6509	deg F	427.4	689.0	933.0	667.6	924.3	920.2
EGT 6510	deg F	342.0	699.4	999.4	687.5	990.3	986.0
EGT 6511	deg F	443.0	763.3	1024.2	747.5	1011.1	1011.8
EGT 6512	deg F	452.7	699.4	960.1	684.2	953.6	951.3
EGT 6521	deg F	0.0	0.0	0.0	0.0	0.0	0.0
DGT 6522	deg F	0.0	0.0	0.0	0.0	0.0	0.0
BOT 6523	deg F	0.0	0.0	0.0	0.0	0.0	0.0
EGT 6524	dog F	0.0	0.0	0.0	0.0	0.0	0.0
BGT Lab Avg	deg F	445.1	710.5	970.3	683.5	958.7	954.9
CDT	deg F	180030.2	180030.2	180030.2	180030.2	180030.2	180030.2
LCOT	deg F	143.8	279.7	369.9	264.9	367.9	374.0
LCIT	deg F	101.7	68.6	89.2	56.1	95.7	96.0
011	deg F	163.4	164.4	165.7	162.8	166.8	168.2
APU Bleed 1	deg F	170.9	308.6	376.1	278.0	375.4	381.6
APU Bleed 2	deg P	180.1	323.0	376.8	278.6	375.1	381.0
APU Bleed 3	deg P	165.6	305.4	377.0	275.7	374.8	381.4
APU Bleed 4	deg F	175.0	320.6	373.9	279.1	371.8	379.2
APU Bleed Avg	deg F	172.9	314.4	375.9	277.8	374.2	380.8



GTCP331-350C perf.log						•		
APU Part No. 3800454-6		GTCP331-350C	Engine Se	rial # P-842	Date :	20 Jul 2020		
DESCRIPTION	UNITS	Prelim	Bleed Valve	Surge Valve	No Load	ECS	MES	
Surge Ctrl Valve 131	deg	20.4	20.3	89.9	20.3	89.9	71.1	
IGV 130	deg	81.6	81.6	10.0	81.6	14.9	17.8	
T2 110	deg F	82.4	68.1	90.0	56.8	97.0	96.8	
P2 112	psia	14.3	14.2	14.1	14.2	14.1	14.1	
PT 166	psia	14.4	15.2	55.6	15.1	54.7	55.8	
PT 166	psia	14.4	15.2	55.6	15.1	54.7	55.8	
DP 165	psid	0.1	2.2	10.3	2.1	9.9	8.8	
T5 175	deg F	477.4	678.7	960.8	668.6	948.1	946.4	
Fuel Control	amp	5.0	6.5	7.7	6.5	7.6	7.6	
*** Corrected Performance ***								
WBCOR	ppm	-31.02	-31.47	323.24	-31.77	317.52	224.15	
WBCDNA	ppm	0.0	0.0	122.4	0.0	122.2	93.,6	
PBCOR	psia	10.93	11.61	50.10	10.71	49.20	45.51	
TBCOR	deg F	202.4	344.6	403.6	308.3	399.7	406.6	
EGTCOR	deg F	-999.0	-999.0	-999.0	-999.0	-999.0	1039.3	
Date		20 Jul 2020	20 Jul 2020	20 Jul 2020	20 Jul 2020	20 Jul 2020	20 Jul 2020	
Time of Day	h:m:s	11:46:46.00	11:23:43.00	11:25:59.00	11:21:09.00	11:29:52.00	11:33:09.00	
Digital Data Point No.		Prelin	Bld Vlv	Surge Vlv	1001	1000	1002	



ACCESSORY REPORT



GTCP331-350(C) WORKSHOP REPORT Revision2

DATD 16064

: P-842

December 2018

APU S/N Work Order No.: AP028536

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LRU SUMMARY STATUS

ITEM	PART NO.	SERIAL NO.	STATUS CODE
COMPRESSOR	3804007-14	05/09960976	TEST CELL RUN ONLY
POWER SECTION	mgu	USNU	TEST CELL RUN CALL
OIL PUMP	3881000-6	0996	TEST CELL RUN ONLY
SURGE VALVE	32904765	/200	REPAIRED
LOAD VALVE	976974-4	1803	RE DAINED
FAN	3616760-2	P-600	TEST CELL RUN ONLY
IGV ACTUATOR	A64982-3	0967	TEST CELL RUN ONLY
OIL TEMP. CONTROL	/58935-3	6180	TEST CELL RUN ONLY
DMM	30443-2	GE 3046	TEST CELL RUN ONL
IGNITION UNIT		050018057187	TEST CELL RUN ON
GEARBOX	3305028-6	0976	TEST CELL RUN OM
FCU	3883240-6	22579	TEST CELL RUN ON
SHUTOFF VALVE	NA	N/A	
OIL COOLER	1604242	1080	TEST CELL RUN ONLY
FLOW DIVIDER	3883297-9	293176	TEST CELL RUN ONL
STARTER	3888217-4	05057910000	TEST CELL RUN O
REPORT PREPARED BY: D	ATE: 21/7/20	APPROVE	



AD STATUS



GTCP331-350(C) WORKSHOP REPORT Revision2 DATD 16064

APU S/N

APU S/N : P-842 Work Order No. : AP028536 December 2018
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AIRWORTHINESS DIRECTIVE RECORD

AD NUMBER	SB NUMBER	DESCRIPTION	COMMENTS	EMBODIED THIS VISIT	FOUND EMBODIED	N/A
,						
			MIL			

•			
REPORT PREPARED BY	DATE:	APPROVED BY	DATE :
: Peller	מאוןנג	: ORMA	21/7/20
7 8		7	



LLP STATUS

Honeywell COMPONENT MAINTENANCE MANUAL

GTCP331-350[C]

ROTATING COMPONENTS/LIFE LIMITED COMPONENTS/CHECK INTERVAL

1. General

> NOTE: There are no life limited components on the GTCP331-350[C] APU.



NIS



To:

Whom it may concern PLUS ULTRA LÍNEAS AÉREAS, S.A. PNR 3800454-6 SN P-842 From:

Equipment:

Aircraft: Airbus A340-313, MSN 215, Tail Number EC-MFB

SUBJECT: Non-Incident/Accident Statement

This is to certify that, to the best of our knowledge, the following statements are true for the equipment referenced above during its period of operation with PLUS ULTRA.

- The equipment has not been involved in any accident, incident, major failure or fire.
- The equipment has not been subjected to extreme heat or other form of extreme stress.
- · The equipment has not been subjected to military or government use, and no parts installed have been obtained from any military, government or unapproved source.
- . The TSN and CSN at the time of phase-out -

 TSN 4,556.2

3,650 · CSN

Signature:

Name: Alejandro Casado

Title: CAMO Technical Manager

Date: 18th Feb 2020