

1. Approving Civil Aviation Authority/Country:  
**FAA/United States**

2.

# AUTHORIZED RELEASE CERTIFICATE

## FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG

3. Form Tracking Number:  
20180005477825Y15  
332673644

4. Organization Name and Address: Honeywell International Inc  
1 Cliff Garrett Drive  
Anniston AL 36201

Repair Station  
ZX4R716M

5. Work Order/Contract/Invoice Number:  
CP136544  
332673882  
Page 1 of 1

6. Item:	7. Description:	8. Part Number:	9. Quantity:	10. Serial Number:	11. Status / Work:
001	COOLING TURBINE	2205490-3	1	1134	OVERHAULED

### 12. Remarks:

THE SERVICE SPECIFIED HAS BEEN ACCOMPLISHED IN ACCORDANCE WITH:  
CMM 21-54-40 Rev 2, MAY/30/2017

	HH.DD	(HH:MM)
TSR	0.00	(0:00)
CSR	0.00	
TSO	0.00	(0:00)
CSO	0.00	

### SEE ATTACHED DOCUMENTS AS APPLICABLE FOR WORK PERFORMED

CERTIFIES THAT THE WORK SPECIFIED IN BLOCK 11/12 WAS CARRIED OUT IN ACCORDANCE WITH EASA PART 145 AND IN RESPECT TO THAT WORK THE COMPONENT IS CONSIDERED READY FOR RELEASE TO SERVICE UNDER EASA PART 145 APPROVAL NO. EASA 145.4127

13a. Certifies the items identified above were manufactured in conformity to:  
 Approved design data and are in a condition for safe operation.  
 Non-approved design data specified in Block 12.

14a.  14 CFR 43.9 Return 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 Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.

13b. Authorized Signature:

13c. Approval/Authorization No.:

14b. Authorized Signature:

14c. Approval/Certificate No.:

*Michael Hartley*

**ZX4R716M**

13d. Name (Typed or Printed):

13e. Date(dd/mmm/yyyy):

14d. Name (Typed or Printed):

14e. Date(dd/mmm/yyyy):

**Michael Hartley**

**16/OCT/2018**

### User / Installer Responsibilities

It is important to understand that the existence of this document alone does not automatically constitute authority to install the aircraft engine/propeller/article. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts aircraft engine(s)/propeller(s)/article(s) from the airworthiness authority of the country specified in Block 1. Statements in Blocks 13a and 14a do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.



# Honeywell

Commercial

Repair Station # ZX4R716M

## Initial Findings Report

<b>Repair Order:</b> 2018-332673882-001 332673644		<b>Customer:</b> 300038 AVGROUP INC	
<b>Customer P/O:</b> CP136544			
<b>Part Number:</b> 2205490-3		<b>Part Desc:</b> COOLING TURBINE	<b>Serial No:</b> 1134
<b>Mods:</b>			
<b>Series/Issue/Amdts:</b> 1			
<b>Quantity:</b> 1			
<b>Aircraft tail#:</b>	<b>Aircraft S/N#:</b>	<b>Date on:</b>	<b>Received Date:</b> 14 JUN 2018
<b>Model #:</b> Air Cycle Machine	<b>Engine S/N:</b>	<b>Date off:</b>	<b>Alternate S/N:</b>
<b>TIMES/CYCLES</b>	<b>HH.DD (HH:MM)</b>		
<b>Time Since New:</b>		<b>Cycles Since New:</b>	
<b>Time Since Overhaul:</b>		<b>Cycles Since Overhaul:</b>	
<b>Time Since Repair:</b>		<b>Cycles Since Repair:</b>	
<b>Time Since Installation:</b>		<b>Cycles Since Installation:</b>	

### CUSTOMER REASON FOR RETURN

NOT REPORTED, TEST FOR RECERTIFICATION.

### GENERAL CONDITION AS RECEIVED (HIDDEN DAMAGE)

#### Condition Received Text

NO INDUCTION TEST PERFORMED DUE TO CONDITION RECIEVED. INITIAL B/A 54 OZ/IN B/A. HEAVY CARBON/DIRT CONTAMINATES PRESENT THROUGHOUT UNIT. EROSION, CORROSION, RUST, AND PITTING PRESENT. HEAVY EROSION TO TURBINE SECTION,

**Reason for return code** No reason noted, no removal reason given

**Removal Type** Not unscheduled(other)

### DETAIL DISASSEMBLY / EVALUATION FINDINGS

#### Failure Description:

HEAVY CONTAMINATE BUILDUP ABOUT ALL BEARINGS AND ROTATIONAL ASSEMBLY INDUCING EXCESSIVE LOADING. HEAVY EROSION TO WHEEL, NOZZLE, AND BEARING PLATE REDUCING OUTPUT EFFICIENCY.

#### Findings:

OVERALL CONDITION AND PERFORMANCE CONDUCIVE TO TIME ON WING, OPERATING ENVIRONMENT, AND DIRTY AIR SUPPLY.

**Related Area:** **Non-conformance:** CONTAMINATED OR CORRODED

**Recurrent Failure:**

Failed Part	Part Name	Condition:	Primary Failure
2207133-1	JOURNAL BEARING SET	Dirty / Contamination	Yes
2207134-1	BEARING SET,	Dirty / Contamination	Yes
2207134-2	BEARING SET,	Dirty / Contamination	Yes
2205497-1	NOZZLE ASSY, TURBINE	Eroded	No - but contributing
2205422-1	WHEEL,TURBINE	Eroded	No - but contributing

### SERVICE BULLETINS / AUTHORIZING DOCUMENTS

#### Authorizing Technical Document

#### Complied With:

Doc#: CMM 21-54-40 Rev: 2 Date: 05/30/2017

# Honeywell

Commercial

Repair Station # ZX4R716M

## Configuration And Findings Evaluation

Repair Order: 2018-332673882-001  
332673644  
Customer P/O: CP136544

Customer: 300038 AVGROUP INC

Part Number: 2205490-3

Orig Cust:

Part Desc: COOLING TURBINE

Serial No: 1134

Mods:

Series/Issue/Amdts: 1

Quantity 1

Ship Date:

Received Date: 14 JUN 2018

### WORK PERFORMED / COMMENTS TO CUSTOMER

#### Workscope Performed / Summary of Actions Taken

OVERHAULED PER CMM.

#### Action Taken Code

Overhaul

#### Customer Confirmed Removal Reason:

None Given

#### Evaluation Type

Evaluated - Significant Fault Found

#### FINAL CONFIGURATION

Part No: 2205490-3



S/N: 1134



Series/Issues/Amdts: 1



Mods:

MECHANIC/ANALYST Patrick Murray

DATE: 09 JUL 2018

# ANALYTICAL CHECK SHEET FORM

# Honeywell

Repair Facility :Honeywell R&O, Anniston, AL Repair  
Station No :ZX4R716M

Customer PO : CP136544  
Notification No: 000332673882  
Outline No : 2205490-3  
Mod To Outline. :2205490-3

Customer : 300038 AVGROUP INC  
Service Order No : 5012445305  
Serial No: 1134  
Mod to S/N : 1134

Sales Order No : 8459341  
Model No. : Air Cycle Machine

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	2205490-3	1134	M	0	COOLING TURBINE	5012445305
OUT	2205490-3	1134	M			

REWORK CODE : 303  
CONDITION CODE : N24 CONTAMINATED OR CORRODED ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204242-1		U	1	ROD, TIE	
OUT	2204242-1		U			

REWORK CODE :  
CONDITION CODE : ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204244-1		N	3	SEAL	
OUT	2204244-1		N			

REWORK CODE :  
CONDITION CODE : 6780 Worn ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204247-1		N	1	IMPELLER COMPRESSOR	
OUT	2204247-1		N			

REWORK CODE :  
CONDITION CODE : 3550 Corrosion/Corroded ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204248-1		U	1	IMPELLER AXIAL	
OUT	2204248-1		U			

REWORK CODE :  
CONDITION CODE : ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204254-1		U	1	PLATE SEAL	
OUT	2204254-1		U			

REWORK CODE :  
CONDITION CODE : ACCT IND :

ANALYST REMARKS :

# ANALYTICAL CHECK SHEET FORM

# Honeywell

Repair Facility :Honeywell R&O, Anniston, AL Repair  
Station No :ZX4R716M

Customer PO : CP136544  
Notification No: 000332673882  
Outline No : 2205490-3  
Mod To Outline. :2205490-3

Customer : 300038 AVGROUP INC  
Service Order No : 5012445305      Sales Order No : 8459341  
Serial No: 1134  
Mod to S/N : 1134      Model No. : Air Cycle Machine

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204255-1		U	1	TORUS, TURBINE	
OUT	2204255-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204258-1		U	1	DUCT, FAN	
OUT	2204258-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204259-1		U	1	RING CONTAINMENT	
OUT	2204259-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204264-1		U	1	HOUSING,MATCHED	
OUT	2204264-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204379-1		U	1	NUT, TRIM	
OUT	2204379-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204382-1		U	1	WASHER-CUP ASSY	
OUT	2204382-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

# ANALYTICAL CHECK SHEET FORM

# Honeywell

Repair Facility :Honeywell R&O, Anniston, AL Repair  
Station No :ZX4R716M

Customer PO : CP136544  
Notification No: 000332673882  
Outline No : 2205490-3  
Mod To Outline. :2205490-3

Customer : 300038 AVGROUP INC  
Service Order No : 5012445305      Sales Order No : 8459341  
Serial No: 1134  
Mod to S/N : 1134      Model No. : Air Cycle Machine

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2204455-1		U	1	NUT	
OUT	2204455-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205412-1		U	1	THRUST DISC BEARING	
OUT	2205412-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205413-1		U	1	SHAFT COMPRESSER	
OUT	2205413-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205422-1		N	1	WHEEL, TURBINE	
OUT	2205422-1		N			

REWORK CODE :

CONDITION CODE :                      6910 Eroded

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205424-1		U	1	SHAFT FAN	
OUT	2205424-1		U			

REWORK CODE :

CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205425-1		N	1	SEAL RING	
OUT	2205425-1		N			

REWORK CODE :

CONDITION CODE :                      6780 Worn

ACCT IND :

ANALYST REMARKS :

# ANALYTICAL CHECK SHEET FORM

# Honeywell

Repair Facility :Honeywell R&O, Anniston, AL Repair  
Station No :ZX4R716M

Customer PO : CP136544  
Notification No: 000332673882  
Outline No : 2205490-3  
Mod To Outline. :2205490-3

Customer : 300038 AVGROUP INC  
Service Order No : 5012445305      Sales Order No : 8459341  
Serial No: 1134  
Mod to S/N : 1134      Model No. : Air Cycle Machine

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205426-1		U	1	SEAL ROTOR	
OUT	2205426-1		U			

REWORK CODE :  
CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205427-1		N	2	RING RETAINING	
OUT	2205427-1		N			

REWORK CODE :

CONDITION CODE :      6360 100% upon Removal

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205444-1		U	1	RETAINER,RING	
OUT	2205444-1		U			

REWORK CODE :

CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205446-1		N	1	PLATE ASSY BEARING	
OUT	2205446-1		N			

REWORK CODE :

CONDITION CODE :      6910 Eroded

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205447-1		U	1	DISC	
OUT	2205447-1		U			

REWORK CODE :

CONDITION CODE :

ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205497-1		N	1	NOZZLE ASSY, TURBINE	
OUT	2205497-1		N			

REWORK CODE :

CONDITION CODE :      6910 Eroded

ACCT IND :

ANALYST REMARKS :

# ANALYTICAL CHECK SHEET FORM



Repair Facility :Honeywell R&O, Anniston, AL Repair  
Station No :ZX4R716M

Customer PO : CP136544  
Notification No: 000332673882  
Outline No : 2205490-3  
Mod To Outline. :2205490-3

Customer : 300038 AVGROUP INC  
Service Order No : 5012445305      Sales Order No : 8459341  
Serial No: 1134  
Mod to S/N : 1134      Model No. : Air Cycle Machine

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2207133-1		N	2	JOURNAL BEARING SET	
OUT	2207133-1		N			

REWORK CODE :  
CONDITION CODE :                      7220 Dirty / Contamination                      ACCT IND :  
6780 Worn

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2207134-1		N	1	BEARING SET,	
OUT	2207134-1		N			

REWORK CODE :  
CONDITION CODE :                      7220 Dirty / Contamination                      ACCT IND :  
6780 Worn

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2207134-2		N	1	BEARING SET,	
OUT	2207134-2		N			

REWORK CODE :  
CONDITION CODE :                      7220 Dirty / Contamination                      ACCT IND :  
6780 Worn

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205942-1		U	2	TUBE RETAINER	
OUT	2205942-1		U			

REWORK CODE :  
CONDITION CODE :                      ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2205943-1		U	1	TRANSFER TUBE	
OUT	2205943-1		U			

REWORK CODE :  
CONDITION CODE :                      ACCT IND :

ANALYST REMARKS :

	Material	Serial No.	Disp	Qty	Description	Service Order #
IN	.2208361-1		N	1	BOLT, SPECIAL	
OUT	2208361-1		N			

REWORK CODE :  
CONDITION CODE :                      6780 Worn                      ACCT IND :

ANALYST REMARKS :