# NATIONAL TRANSPORTATION SAFETY BOARD OFFICE OF AVIATION SAFETY WASHINGTON, D.C. 20594

#### Date

## PROPELLER MAINTENANCE GROUP CHAIRMAN'S FACTUAL REPORT ADDENDUM A

NTSB ID No.: DCA-95-MA-054

A: ACCIDENT

Location: Carrollton, Georgia

Date: August 21, 1995

Time: 1253 eastern daylight time (EDT)

Aircraft: Embraer EMB-120RT, N256AS, Atlantic Southeast Airlines,

Flight No. 7529

This addendum contains the following modifications to the Propeller Maintenance Group Chairman's Factual Report for the subject accident. The new or modified test is shown in *italics*.

#### Page 8, Section D.2.3, Taper bore repair

In Line 17 of the paragraph, after ... 63 rms, add the following:

(rms, root mean square, is a method to measure surface roughness. RMS is the square root of the average of the squared deviations from a mean. It can be measured with a comparator or with a profilometer.).

#### Page 27, second paragraph,

In the Line 2 of the paragraph, after ... rejected area.", add the following:

(A copy of the shop router for blade SN 861398, which was an attachment to Hamilton Standard letter to the FAA, dated August 23, 1995, is attached.)

#### Page 27, second paragraph

In Line 14, the statement in the parentheses should be revised as follows:

(A copy of the memo is attached.)

#### Page 28, Section 5.0, Mr. Chris Bender's Work Schedule

The last sentence should be revised to:

Propeller blade SN 861398 had the taper bore blend repaired and inspected on June 7, 1994, which was a Tuesday.

### Page 30, ATTACHMENTS

Add the following:

4. Hamilton Standard Rock Hill shop router for propeller blade SN 861398.

Gordon J. Hookey

Propeller Maintenance Group Chairman

Record of Work Attachment # 6 (24 pages)

AND AS'S.

0060000579

SERVICE #:

#### HSCSC ROCK HILL HARDWARE FLOW TRAVELER FORM NUMBER RH243

Page 1 of 24 REV: 2 APPROVED: R. CARTER 5-13-94

WORK ORDER NO.: 448

PART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

R315

Authorizing Document Approvals

SERIAL NUMBER:861398

PRINT DATE: 06-07-1994

CMM 61-13-04, 14RF-9 SERVICE BULLETINS, HSSDER'S

R005 R110B R190 R210 R220

R360 R380 R390 R430 RSTD

Operation#	Operation Description	Repairman	2nd Verify
R040	BLADE REPAIR INSPECTION	xxx	xxx
	THIS CUSTOM ROUTER IS GENERATED AS A RESULT OF A BLADE REPAIR INSPECTION, AND IS BEING USED TO ACCOMPLISH WORK ON A BLADE IN "REPAIR" STATUS.  CYCLE TIME: 60	ххх	xxx
   R090   	ULTRASONIC INSPECT PER ALERT S.B. 14RF-9-61-A66 (CONFIRMATION OF FIELD REJECT) 14RF-21-61-A53 14RF-19-61-A34		xxx
	SERVICE # R315  AFTER U.T. INSPECTION IS COMPLETE:  (FOR EITHER PASS OR FAIL)		ххх
	FILL IN THE INSPECTION DATA SHEET LABELED "HSS-RH INITIAL CHECK OF FIELD U.T. INSPECTION" (USE THE CORRECT MODEL # FORM) AND FAX TO THE LISTED NUMBER. REATTACH SHEET TO THE S.B. AFTER FAXING.		xxx
	BLADE PASSES U.T. INSPECTION (FAILURE NOT CONFIRMED)		xxx
     (cont)	BLADE FAILS U.T. INSPECTION: (FAILURE CONFIRMED)		ххх

WORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R090	PROCEED WITH THE FOLLOWING OPERATIONS, UNLESS: - ANY U.T. READING ON THE FACE SIDE THAT IS 100% OR GREATER.		xxx
	- ANY U.T. READING ON THE CAMBER SIDE THAT IS 120% OR GREATER.		   xxx 
	IF EITHER OF THESE CONDITIONS EXIST, REMOVE THE LEAD AND CORK, THEN SEND THE BLADE TO EAST WINDSOR, ALONG WITH THE LEAD AND CORK, FOR EVALUATION.	46/20 6(7(94	xxx
R090A	REMOVE ALL TAPER BORE LEAD, CLEAN & TAPE SHANK-F.C. #1		xxx
	REFERENCE: CMM 61-13-04 REP. 4-15 SERVICE # R315 61-13-09 REP. 4-12 61-13-03 REP. 4-13		       xxx
 	1. MEASURE DEPTH OF CORK FROM THE BLADE BUTT FACE AND RECORD DEPTH, P/N AND S/N ON A MANILLA TAG.		
	<ol> <li>REMOVE ALL LEAD USING ONLY THE PROPER TOOLS.</li> <li>CAUTION - ENSURE THE TAPER BORE IS NOT DAMAGED DURING THE REMOVAL PROCESS.</li> </ol>		ххх
 	3. SAVE ALL REMOVED LEAD AND CORK, AND SEAL IN A CLEAN PLASTIC BAG, ALONG WITH THE MANILLA TAG.		   xxx 
 	FILL IN A LOGSHEET WITH THE BLADE S/N AND STORE THE BAG IN A BOX.		xxx
(cont)	4. CLEAN THE ENTIRE TAPER BORE WITH ACETONE OR MEK. CAUTION - USE PROPER SAFETY CAUTIONS FOR SOLVENTS.	,, 	

7/

WORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R090A	5. TAPE THE SHANK FOR PROTECTION.		
	CYCLE TIME: 30 TECH_CSB4/7/24		
R090B	BOROSCOPE EXAMINE TAPER BORE F.C. # 1 REFERENCE: PS960A SERVICE # R315		ххх
     	BOROSCOPE EXAMINE ENTIRE TAPER BORE AND RECORD RESULTS ON THE FORM LABELED "HSS-RH RECHECK OF BLADES AFTER TAPER BORE PEWORK" (USE CORRECT MODEL # FORM). ONLY FILL IN THE SECTION LOCATED ABOVE THE ILLUSTRATION AT THIS TIME (DO NOT FAX FORM YET).		xxx
   	****CAUTION**** SEND BLADE TO HSS EAST WINDSOR IF THE BLADE EXHIBITS ANY OF THE FOLLOWING (ALONG WITH THE PLASTIC BAG OF PARTS):		ххх
	- EVIDENCE OF CORROSION - DISCOLORATION OR POWDERY INDICATIONS		xxx
· [	CYCLE TIME: 5 TECHCSBG7/9		xxx
R090C	GRIT BLAST TAPER BORE TO REMOVE RESIDUAL LEAD F.C. #1 REF: PS960A SERVICE # R315		ххх
	NOTE: USE ONLY 120 GRIT ALUMINUM OXIDE GRIT.		
	CYCLE TIME: 10 TECHCSB47/94		xxx 
R090D	BOROSCOPE EXAMINE TAPER BORE, RECORD RESULTS.  REFERENCE: PS 960A F.C. # 1  SERVICE # R315		ххх
(cont)	IMPORTANT: USING THE U.T. FORM LABELED "HSS-RH RECHECK	•.	xxx

 $\mathcal{N}/$ 

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART HUMBER: RFC11M1-6A

WORK ORDER NUMBER: 448

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R090D	OF BLADES AFTER T.B. REWORK (USE CORRECT MODEL #) FILL IN THE SECTION LOCATED ABOVE THE ILLUSTRATION (DO NOT FAX FORM YET). ALSO FILL IN THE SECTION IN THIS OPERATION.	i	xxx
	*****CAUTION***** SEND THE BLADE TO HSS EAST WINDSOR IF ANY OF THE FOLLOWING ARE FOUND (ALSO INCLUDE THE PLASTIC BAG OF LEAD & CORK).		xxx
     	- ANY EVIDENCE OF CORROSION, INCLUDING POWDERY SUBSTANCE OR DISCOLORATION ANY PITS EQUAL TO OR GREATER THAN 0.020" X 0.040"		xxx
	- ANY VISIBLE CRACKS OR OTHER UNWORKABLE FLAWS.  RESULTS: No visible falt, found, blendrejected area.		xxx
	CORROSION PITTING TOOL MARKS TIP		xxx
	FACE CAMBER		xxx
	TRAIL LEAD		xxx
	CYCLE TIME: 5 TECH_C584/7/94		ххх
R090E	BLEND AND BOROSCOPE CHECK OF TAPER BORE F.C. # 1	• • •	xxx

10

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

WORK ORDER NUMBER: 448

Operation#	Operation Description	Repairman	2nd Verify
R090E	REFERENCE: PS 960A SVC # R315		
	BLEND ALL BORE DAMAGE WITH ALUMINUM OXIDE SANDING TOOLS. REFERENCE PS960A FOR BLADE AREA DEFINITIONS.		xxx
	- BLEND DAMAGE AT 50 TIMES THE REPAIR DEPTH. SURFACE   FINISH TO BE 63 RMS.		
	- MAXIMIM STOCK REMOVAL LIMITS:		xxx
	- FACE SIDE: 0.010 INCHES		
	- ALL OTHER AREAS: 0.020 INCHES		xxx
	BOROSCOPE CHECK ALL DAMGE FOR PROPER BLENDING; ALSO ENSURE THE SURFACE FINISH IS 63 RMS.		xxx
	CYCLE TIME: 30 TECH <u>C5BG/7/</u> 94		
RO9ÖF	ULTRASONIC INSPECT PER ALERT S.B. 14RF-9-61-A66 14RF-21-61-A53		xxx
	SERVICE # R315 14RF-19-61-A34		
	IF THE BLADE PASSES U.T. INSPECTION:		xxx
. !	FILL IN THE INSPECTION DATA SHEET LABELED "HSS-RH RECHECK OF BLADES AFTER REWORK" (USE CORRECT MODEL #		
	FORM) AND FAX TO THE LISTED NUMBER. REATTACH SHEET TO THE S.B. AFTER FAXING.		xxx
 	ALSO MARK "NR" IN THE FOLLOWING REBLEND AND U.T. OPERATIONS AND PROCEED TO THE SOLVENT CLEANING		xxx
(cont)	OPERATION.	•	

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

WORK ORDER NUMBER: 448
PART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R090F	PASS (CIRCLE IF APPLICABLE)  IF TAPER BORE FAILS U.T. INSPECTION:		xxx
	DO NOT FILL IN A U.T. INSPECTION FORM. CIRCLE "FAIL" BELOW, THEN REBLEND AND U.T. IN THE FOLLOWING TWO OPERATIONS. FAIL (CIRCLE IF APPLICABLE)		xxx
 	*********CAUTION******** STOP WORK AND SEND THE BLADE TO HSS EAST WINDSOR IF EITHER OF THE FOLLOWING	i , , , , , , , , , , , , , , , , , , ,	xxx
i   	CONDITIONS ARE FOUND: (ALSO INCLUDE THE PLASTIC BAG PARTS)	,	xxx
	- ANY U.T. READING ON THE FACE SIDE THAT IS 100% OR GREATER ANY U.T. READING ON THE CAMBER SIDE THAT IS 120%	998ela 6[7]94	xxx
	CYCLE TIME: 10 TECHOOKEY		xxx
R090G	REBLEND TAPER BORE F.C. #1 REF: PS960A SERVICE # R315		xxx
	REBLEND ALL REJECTED AREAS OF THE TAPER BORE TO MEET PS 960A FINISH REQUIREMENTS. REFERENCE OPERATION R090E.		xxx
	CIRCLE N/R IF TAPER BORE REBLEND IS NOT REQUIRED.  CYCLE TIME: 10  TECHNOLOGY  TECHNOLOGY	.,	xxx

 $\omega/$ 

WORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: EFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R090H	RE-ULTRASONIC INSPECT PER ALERT S.B. 14RF-9-61-A66		xxx
	SERVICE # R315 14RF-19-61-A34		
	FILL IN THE INSPECTION DATA SHEET LABELED "HSS-RH RECHECK OF BLADES AFTER T.B. REWORK" AND FAX TO THE LISTED NUMBER. REATTACH SHEET TO THE S.B. AFTER (FAXING.		ххх
	N/R PASS FAIL		xxx
	***IF THE BLADE STILL FAILS U.T., SEND THE BLADE TO EAST WINDSOR ALONG WITH THE PLASTIC BAG PARTS FOR EVALUATION.		xxx
	CYCLE TIME: 10 TECH Chies		
R0901	SOLVENT CLEAN TAPER BORE & APPLY ALODINE F.C. #1 REFERENCE: PS 960A SERVICE # R315		xxx
     	THOROUGHLY CLEAN TAPER BORE WITH MEK AND APPLY ALODINE 600 TO ENTIRE TAPER BORE. USE THE IMMERSION METHOD. ALLOW A 3 MINUTE SOAK:  START TIME 12:57		xxx
 	STOP TIME 12:54	 	xxx
 	NOTE: IF THE BLADE IS TO RECEIVE ADDITIONAL WORK, MOVE IT TO THE OUTGOING KAN BAN AREA AND N/A THE NEXT OPERATION ( 24 HR. ALODINE CURE).		xxx
(cont)	IF THE BLADE IS GOING DIRECTLY TO BALANCE, MOVE IT TO THE 24 HOUR CURE RACK AND RECORD CURE TIME IN THE NEXT OPERATION.		xxx

2/

WORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

Operation#	Operation Description	Repairman	2nd Verify	
R090I	CYCLE TIME: 10 TECH_C50 G/7/Q			
R090J	24 HOUR ALODINE CURE F.C. # 1 REFERENCE: PS 960A SERVICE # R315		xxx	1
   	CURE TIME START DATE 6/7/94 TIME 12:55 AM/6M  CURE TIME STOP DATE 6/9/94 TIME 1:30 AM/6M		xxx	
 	NOTE:  N/A THIS OPERATION IF BLADE IS TO RECEIVE ADDITIONAL WORK.		xxx	
R185	REMOVE TEFLON STRIP F.C. # 3 REFERENCE: REPAIR 4-5 SERVICE # R360, R330		xxx	Juan
R186	REMOVE HAMILTON STANDARD DECAL F.C. # 3 REFERENCE: 61-13-03 (4-14) SERVICE # R430		xxx	  -  
	-04 (4-16) -09 (4-13) CYCLE TIME5 <i>L-9-94</i> TECH Sof		ххх	5 m
R190	REMOVE NICKEL SHEATH F.C. # 3 REFERENCE: REPAIR 4-10 SERVICE # R190, R170		l <sub>xxx</sub>	
	NOTES:  1. WEAR SAFETY GLOVES DURING THIS OPERATION.		xxx	
(cont)	2. PLACE REMOVED NICKEL IN RECYCLING CONTAINER. '			

ORE ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

ART NUMBER: RFC11M1-6A

	Operation#	Operation Description	Repairman	2nd Verify	] 
	R190	3. DO NOT GRIND UNDERLYING FIBERGLASS.  CYCLE TIME20 6-9-94 TECH		xxx	) 2001/N
	R210	REMOVE EROSION SHEATH F.C.# 3 REFERENCE: 61-13-03 (4-18) SERVICE # R210,		xxx	
=\		-04 (4-19) R260A, R260B, S.B. 14RF-9-61-46 R230 S.B. 14RF-21-61-35  CYCLE TIME5 (,-9.44 TECH		     xxx 	   5 m, w 
(EOUNK	R215	REMOVE INTERNAL HEATER LEAD F.C. # 3 REFERENCE: 61-13-03 (4-11) SERVICE # R220, -04 (4-18) R260A, R260B		xxx	<u>-</u>
EEOUNK 1704 17,94	7	S.B. 14RF-9-61-46 S.B. 14RF-21-61-35  CYCLE TIME15  CYCLE TIME15  CYCLE TIME15		   xxx 	ATTACK REST
pe.	R380	FIBERGLASS LOCAL REPAIR, GRIND & LAYUP F/G - F.C. # 4 REFERENCE: REPAIR 4-2 SERVICE # R110A,B,C,D	f	xxx	A
	 	AIR CURE TIME: START AM/PM (SPEC: 120 MINUTES) STOP AM/PM		xxx	
9	 	CYCLE TIME60 TECH_		xxx	1
	R430	ALL FIBERGLASS LOCAL OR SYRINGE REPAIRS, OVEN CURE REFERENCE: REPAIR 4-2 FC # 4		ххх	7    -  -
	(cont)	SERVICE # R110A,B,C,D R120A,B,C, R150, R160, R170,			

## lis

#### HSSCSC ROCK HILL HARDWARE FLOW TRAVELER FORM NUMBER RH243

WORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

Operation#	Operation Description	Repairman	2nd Verify
R430	R230.		xxx
;   	NOTE: OVEN CURE ALL F/G REPAIRS FOR 120 MINUTES AT 130-140 DEGREES F.		
	STARTAM/PM STOPAM/PM		xxx
;   	CYCLE TIMEWAIT 120 TECH		
R450	FIBERGLASS LOCAL REPAIRS, BLEND F/G F.C. # 4 REFERENCE: REPAIR 4-2 SERVICE # R110A,B,C,D	!	xxx
   	NOTE: VERIFY THAT ALL F/G REPAIRS LISTED ON THE BLADE   MAP ARE BLENDED AS REQUIRED.		xxx
	CYCLE TIME20 ' TECH		
R520	ALL FIBERGLASS REPAIRS, TAP TEST F.C. # 4 REFERENCE: REPAIR 4-2		xxx
   	SERVICE # R110A,B,C,D, R120A,B,C, R130A,B,C, R150, R160, R170, R230.		ххх
	NOTE: ENSURE ALL AREAS MARKED ON THE BLADE MAP ARE TAP TESTED.		
	CYCLE TIME10 TECH		xxx
R540	NICKEL SHEATH REPLACE, GRIND & LAYUP F/G F.C. # 5 REFERENCE: REPAIR 4-10, 4-2 SERVICE # R190		xxx
(cont)	NOTE: ENSURE THE CORRECT SHEATH TEMPLATE IS USED TO CONTOUR THE LEADING EDGE.	·,	xxx

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

IORK ORDER NUMBER: 448

Operation#	Operation Description	Repairman	2nd Verify
R540	AIR CURE TIME: STARTAM/PM (SPEC: 120 MINUTES) STOPAM/PM		xxx
	CYCLE TIME80 TECH		
R550	NICKEL SHEATH REPLACE, OVEN CURE FIBERGLASS - F.C. # 5 REFERENCE: REPAIR 4-10 SERVICE # R190		ххх
	OVEN CURE THE F/G AT 130-140 DEGREES F. FOR 120 MINUTES.		xxx
1	START TIME:AM/PM STOP TIME:AM/PM		
!	CYCLE TIMEWAIT 120 TECH		xxx
R555	NICKEL SHEATH REPLACE, BLEND & TAP TEST FIBERGLASS REFERENCE: REPAIR 4-10, 4-2 F.C. # 5 SERVICE # R190		xxx
   	NOTE: BLEND F/G AS REQUIRED AND TAP TEST FOR DELAMINATIONS.		жж
	CYCLE TIME10 TECH		
R560	NICKEL SHEATH REPLACE, PREPARE FOR BOND CYCLE  REFERENCE: REPAIR 4-10 F.C. # 5  SERVICE #R190		xxx
	CYCLE TIME180 TECH		xxx
R565	NICKEL SHEATH REPLACE, BOND CYCLE F.C. # 5		xxx
(cont)	REFERENCE: REPAIR 4-10 SERVICE # R190	•	

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

WORK ORDER NUMBER: 448

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R565	BOND CYCLE START AM/PM STOP AM/PM (SPEC: 110 MINUTES)		xxx
   	CYCLE TIMEWAIT 110 TECH		
R570	NICKEL SHEATH REPLACE, REMOVE FROM RIG F.C. # 5 REFERENCE: REPAIR 4-10SERVICE # R190		ххх
   	NOTE: DISCONNECT EQUIPMENT FROM THE BOND RIG AND REMOVE FIXTURES FROM THE BLADE.		xxx
 	ALSO PERFORM A TAP TEST AND VISUAL CHECK OF THE SHEATH. CHECK FOR CRACKS USING A 3 X MAGNIFIER.		
	CYCLE TIME15 TECH		xxx
R575	NICKEL SHEATH REPLACE, DYE CHECK F.C. # 5 *** INSPECTION REQUIRED FOR THIS OPERATION ***	xxx	
	REFERENCE: REPAIR 4-10SERVICE # R190  NOTE: DYE PENETRANT THE SHEATH EDGES FOR VOIDS OR  DELAMINATIONS PER AMS 2646C. NONE ALLOWED.	xxx	
	CIRCLE ONE: ACCEPT REJECT(REASON)  CYCLE TIME: RUN20, WAIT36	xxx	
R578	TEFLON STRIP REPLACE F.C. # 6 REFERENCE: REPAIR 4-5 SERVICE # R360		xxx
	CYCLE TIME20 TECH		
R580	INTERNAL HEATER LEAD REPLACE, MASK, PREPARE FOR		xxx

 $\frac{\overline{z}}{\sqrt{z}}$ 

WORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R580	PRIMING AND APPLY PRIMER F.C. # 6		
 	REFERENCE: 61-13-03 (4-11) -04 (4-18) SERVICE # R220		xxx
	AIR CURE TIME: (SPEC: 60 MINUTES)		
ļ	HEATER LEAD (APPLY 1007 PRIMER)		xxx
	START AM/PM STOP AM/PM		
}	SHANK (APPLY EC 776 PRIMER)		xxx
	START AM/PM STOP AM/PM		
	CYCLE TIME: RUN25, WAIT60 , TECH		xxx
R582	INTERNAL HEATER LEAD REPLACE, APPLY 1007 TO SHANK REFERENCE: 61-13-03 (4-11) F.C. # 6 -04 (4-18) SERVICE # R220		xxx
	AIR CURE TIME (SPEC: 60 MINUTES)		xxx
	START AM/PM STOP AM/PM		
	CYCLE TIME: RUN5; WAIT60 TECH		xxx
R584	INTERNAL HEATER LEAD REPLACE, APPLY ADHESIVE TO LEAD & SHANK F.C. # 6		ххх
1	REFERENCE: 61-13-03 (4-11) SERVICE # R220   -04 (4-18)		
1	AIR CURE TIME: (SPEC: 120 MINUTES)		xxx
(cont)	<b>!</b>	•	

 $\overline{x}$ 

## HSSCSC ROCK HILL HARDWARE FLOW TRAVELER

FORM NUMBER RH243

ORK ORDER NUMBER: 448 SERIAL NO.: 861398

PRINT DATE: 06-07-1994

ART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation# | Operation Description Repairman 2nd Verify START AM/PM STOP AM/PM R584 XXX CYCLE TIME: RUN--10, WAIT--120 TECH R586 INTERNAL HEATER LEAD REPLACE, APPLY SECOND COAT OF XXX 1096 TO LEAD & SHANK. F.C. # 6 REFERENCE: 61-13-03 (4-11) SERVICE # R220 -04 (4-18) XXX AIR CURE TIME: (SPEC: 30 MINUTES) START AM/PM STOP AM/PM XXX CYCLE TIME: RUN--5, WAIT--30 TECH INTERNAL HEATER LEAD REPLACE, INSTALL & SOLDER LEAD R587 XXX REFERENCE: 61-13-03 (4-11) F.C. # 6 -04 (4-18) SERVICE # R220 HEATER RESISTANCE (SEE TABLE 102 FOR SPEC) OHMS XXX CYCLE TIME -- 20 TECH INTERNAL HEATER LEAD REPLACE, CLEAN & APPLY GLYPTOL (2) R588 XXX F.C. # 6 COATS) REFERENCE: 61-13-03 (4-11) SERVICE # R220 -04 (4-18) XXX AIR CURE TIME: FIRST COAT: (SPEC: 60 MINUTES) XXX START AM/PM STOP AM/PM (cont)

#### ORK ORDER NUMBER: 448

## HSSCSC ROCK HILL HARDWARE FLOW TRAVELER FORM NUMBER RH243

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

ART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R588	SECOND COAT: (SPEC: 60 MINUTES)  START AM/PM STOP AM/PM  CYCLE TIME: RUN-10, WAIT120 TECH		xxx
R589	INTERNAL HEATER LEAD REPLACE, APPLY PRIMER & EC801 REFERENCE: 61-13-02 (5-16) F.C. # 6 SERVICE # R220		xxx
	PRIMER AIR CURE TIME: (SPEC: 60 MINUTES)  STARTAM/PM STOPAM/PM		xxx
	CYCLE TIME: RUN10, WAIT60 TECH		xxx
R660	EROSION SHEATH REPLACE, PREPARE FOR PRIMING F.C. # 6 REFERENCE: 61-13-03 (4-18) -04 (4-19) SERVICE # R210		xxx
	CYCLE TIME: RUN35, WAIT10 TECH		(   xxx
R665	EROSION SHEATH REPLACE, APPLY PRIMER F.C. # 6 REFERENCE: 61-13-03 (4-18) -04 (4-19) SERVICE # R210		xxx
	AIR CURE TIME: (SPEC: 60 MINUTES)		xxx
}   	START AM/PM STOP AM/PM		
	CYCLE TIME: RUN10, WAIT60 TECH		ххх
R670 (cont)	EROSION SHEATH REPLACE, PREP SHEATH, APPLY ADHESIVE REFERENCE: 61-13-03 (4-18) F.C. # 6	•	ххх

\_

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

ART NUMBER: RFC11M1-6A

ORK ORDER NUMBER: 448

Operation#	Operation Description	Repairman	2nd Verify
R670	-04 (4-19) SERVICE # R210		
	AIR CURE TIME: (SPEC: 120 MINUTES)		xxx
	STARTAM/PM STOPAM/PM		
   	CYCLE TIME: RUN5, WAIT120 TECH		xxx
R674	EROSION SHEATH REPLACE, APPLY ADHESIVE F.C. # 6 REFERENCE: 61-13-03 (4-18) -04 (4-19) SERVICE # R210		xxx
	AIR CURE FOR 10 TO 60 MINUTES UNTIL "AGGRESSIVELY TACKY"		xxx
	CYCLE TIME: RUN5, WAIT10 TO 60 TECH		
R676	EROSION SHEATH REPLACE, INSTALL SHEATH & SEAL F.C. #6 REFERENCE: 61-13-03 (4-18) -04.(4-19) SERVICE # R210		ххх
	NOTE: AFTER SHEATH INSTALLATION, TRIM AS REQUIRED AND THEN APPLY EC801 TO THE EDGES.		xxx
	CYCLE TIME35 TECH		
R680	EROSION FILM INSTALL (FOR EROSION SHEATH) F.C. # 6 REFERENCE: 61-13-03 (4-17) -04 (4-13) SERVICE # R200, R210		ххх
	CYCLE TIME 25 TECH		xxx
R810 (cont)	PRE-BALANCE FOR EROSION COATING F.C. # 7 REFERENCE: 61-13-03 (4-13) SERVICE # R400,	',	xxx



## HSSCSC ROCK HILL HARDWARE FLOW TRAVELER

FORM NUMBER RH243

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

JORK ORDER NUMBER: 448

Operation#	Operation Description	Repairman	2nd Verify
R810	-04 (4-15) R380, R390. -09 (4-12)		
	FIXTURE SETTING BLADE P/N 788390-2 RFC11M1-6A		xxx
1	792232-1 RFC11N1-6A, RFC11U1-6A		   xxx
   	789746-2 RFC11P1-0C, RFC11R1-0C, RFC11V1-0C		
	802258-1,-2 RFC11T1-0C, RFC11W1-0C		xxx
	RECORD RESULTS:INCH OZ. OR POUNDS (CIRCLE ONE)		
	CYCLE TIME12 TECH		xxx
R830	EROSION COATING LOCAL TOUCH-UP F.C. # 7 REFERENCE REPAIR 4-7 SERVICE # R380		ххх
   	AIR CURE TIME: START AM/PM STOP AM/PM (SPEC: 60 MINUTES)		xxx
	CYCLE TIME30 TECH	·	
R840 ·	EROSION COAT COMPLETE OR LOCAL OVEN CURE F.C. # 7 REFERENCE: REPAIR 4-7 SERVICE # R380, R400		xxx
	NOTE: OVEN CURE EROSION COATED BLADE AT 130-140 DEGREES F. FOR 60 MINUTES.	:	xxx
	START TIMEAM/PM STOPAM/PM		
(cont)	NOTE: IF BLADE WAS AIR CURED FOR ATLEAST 8 HOUR MIN., OVEN CURE OF EROSION COATING IS NOT REQUIRED.	ر. ماد	xxx

ORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

ART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R840	CYCLE TIMEWAIT 60 TECH		
R845	EROSION COAT TIP & REFERENCE LINE F.C. # 7 REFERENCE: REPAIR 4-7 SERVICE # R390, R400		xxx
;   	AIR CURE TIME: START AM/PM STOP AM/PM (SPEC: 60 MINUTES)		xxx
	CYCLE TIME30 TECH		
R850	EROSION COATING TIP OVEN CURE F.C. # 7 REFERENCE: REPAIR 4-7 SERVICE # R390, R400		xxx
   	NOTE: OVEN CURE EROSION COATED TIP AT 130-140 DEGREES F. FOR 60 MINUTES.	·	xxx
1	START AM/PM STOP AM/PM  NOTE: IF BLADE WAS AIR CURED FOR ATLEAST 8 HOURS MIN.,  OVEN CURE OF EROSION COATING IS NOT REQUIRED.		xxx
<u> </u>	CYCLE TIMEWAIT 60 TECH		xxx
R860	STATIC BALANCE F.C. # 7 REFERENCE: 61-13-03 (4-13) SERVICE # RSTD		ххх
	-04 (4-15) -09 (4-12)	   	xxx
 	**CONFIRM OUTGOING CONFIGURATION, THEN CIRCLE REQUIRED FIXTURE SETTING**		^^^
(cont)	FIXTURE SETTING BLADE P/N 788390-2 RFC11M1-6A		xxx

2)

# A TACHMENT Y

## HSSCSC ROCK HILL HARDWARE FLOW TRAVELER FORM NUMBER RH243

FORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

Operation#	Operation Description	Repairman	2nd Verify	
R860	792232-1 RFC11N1-6A, RFC11U1-6A			
	789746-2 RFC11P1-0C, RFC11R1-0C, RFC11V1-0C		xxx 	
	802258-1,-2 RFC11T1-0C, RFC11W1-0C		 	
į	ENTER TIME PROSEAL 870 B 1/2 APPLIED		xxx   	
ļ	CYCLE TIME50 TECH			
R870	VERIFY PAPERWORK, FREEZE BLADE PIN IF APPLICABLE SERVICE # RSTD REFERENCE: REPAIR 4-9 F.C. # 8		xxx	
	1. VERIFY ALL PAPERWORK ACCOMPANYING BLADE IS PROPERLY FILLED IN.		xxx	
	2. IF APPLICABLE, RETREIVE BLADE PIN FROM THE BIN NUMBER LISTED ON THE "SERVICEABLILITY REVIEW CHECKLIST". WEARING SAFETY GLOVES, INSERT THE PIN AND INSTALLATION FIXTURE INTO LIQUID NITROGEN.		xxx	
	NITROGEN IMERSION TIME (SPEC: 20 MINUTES MINIMUM)  START AM/PM STOP AM/PM		xxx	
	CYCLE TIME5 TECH			
R895	DECAL APPLICATION F.C. # 8  REFERENCE: 61-13-03 (4-14) SERVICE # R430  -04 (4-16)  -09 (4-13)		xxx	
1	CYCLE TIME10 TECH		xxx	

ORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

ART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R900	INNER BEARING RACE POLISH & VISUAL CHECK F.C. # 8 REFERENCE: REPAIR 4-8 SERVICE # RSTD		xxx
   	CYCLE TIME5 TECH		
R905	AIRFOIL STENCILING F.C. # 8 REFERENCE: REPAIR 4-7 SERVICE # RSTD		xxx
	NOTE: ENSURE "PS 960A" AND "ASB 66" (RF-9) "ASB 34" (RF-19) "ASB 53" (RF-21)		xxx
	ARE COMPLIED WITH AND STENCILED ON THE BLADE.  CYCLE TIME5 TECH		xxx
R930	FINAL PROCESS OPERATIONS F.C. # 8   REFERENCE: CMM VARIOUS SERVICE # RSTD	The same of the sa	xxx
	NOTE: CHECK OFF EACH ITEM AS IT IS COMPLETED.  A. HEATER RESISTANCE CHECK OHMS (SEE CMM FOR SPEC.)		 
 	B. HEATER INSULATION CHECKMEG OHMS (SEE CMM FOR SPEC.)		   xxx 
 	C. LIGHTLY SAND NICKEL SHEATH IF SCRATCHED.		xxx
	D. VISUALLY CHECK TEFLON STRIP FOR DAMAGE.  E. CHECK EROSION COATING, TOUCH UP IF REQUIRED.		
(cont)	F. CHECK THE BALANCE OPERATION TO ENSURE THAT THE	• ••	xxx

15

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

JORK ORDER NUMBER: 448

Operation#	Operation Description	Repairman	2nd Verify
R930	PROSEAL 870 B 1/2 HAS CURED FOR AT LEAST TWO HOURS. INSTALL THE BORE O-RING, PLUG AND SNAP RING. ENSURE THE SNAP RING IS SECURELY INSTALLED.		xxx
	G. IF BLADE PIN WAS REMOVED: - RETENTION TEST (SPEC: 0.004" MAX.)		xxx
	- INSTALLED HEIGHT(SPEC: 1.248-1.254")	:	xxx
	- SETSCREW DEPTH(SPEC: 0.200" MINIMUM)   H. INSTALL BLADE PIN HARDWARE. CHECK FOR BRG RADIAL		
 	LOOSENESS. I. CLEAN SHANK WITH MEK; APPLY ALODINE AS REQD.		xxx
	CYCLE TIME50 TECH		xxx
R950	FINAL INSPECTION OPERATIONS - F.C. # 8  *** INSPECTION REQUIRED FOR THIS OPERATION ***  SERVICE # RSTD		ххх
;   	REFERENCE: CMM VARIOUS  CHECK OFF EACH ITEM AS IT IS COMPLETED.		xxx
   	A. PERFORM COMPLETE VISUAL CHECK OF BLADE. DO THIS TWO TIMES MINIMUM.		xxx
(cont)	B. VERIFY CORRECT STENCILING AND SHANK STAMPING, BY CHECKING THE SERVICEABILITY REVIEW OUTGOING  P/N & CONFIGURATION, ALONG WITH ANY HSCSCRH 007  FORMS AND SERVICE BULLETINS.	,,	xxx

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

'ART NUMBER: RFC11M1-6A

JORK ORDER NUMBER: 448

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R950	C. ENSURE PIN TEST DIMENSIONS ARE RECORDED AT FINAL PROCESS OPERATION.		xxx
]	D. VERIFY THAT ALL WORK ORDER PARTS LIST PARTS WERE INSTALLED.		
1	E. VERIFY CORRECT INSTALLATION OF LEAD PLUG SNAP RING AND BLADE PIN HARDWARE AND COTTER PIN.	ı	xxx   
}   	F. VERIFY BLADE BEARING RADIAL FIT BY HAND.		xxx
	G. ENSURE ANY FAA "A.D. NOTES" ARE INCORPORATED AS REQUIRED.		
	H. VERIFY ALL REQUIRED S/B'S ARE INCORPORATED.		xxx 
	I. BRIDGE THE WORK AND SALES ORDERS.		xxx
]   	J PRINT THE SALES ORDER K. PRINT THE ACR.		
	L. VERIFY THE ACR, SERVICEABILITY REVIEW FORM AND HARDWARE FLOW TRAVELER REPAIRS MATCH.		xxx
	M. ENSURE ALL FORMS ARE COMPLETE AND THE BLADE SERIAL AND PART NUMBERS ARE CORRECT.	,	xxx
	N. GENERATE TWO COPIES OF THE FAA MAINTENANCE RELEASE TAG.		xxx
	PREPARATION FOR SHIPPING:		1
(cont)	O. APPLY SHIPPING FOAM TO THE TEFLON STRIP.		xxx

13

ATTACHMEN 4

WORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R950	P. APPLY A COATING OF MIL-L-23699 OIL TO THE BLADE SHANK, PIN, RETENTION HARDWARE AND INNER BEARING RACE.		xxx
	Q. APPLY A 50/50 MIX OF PML 9005 OIL AND 10-W-30 MOTOR OIL TO THE BLADE FIBERGLASS SURFACE. WHEN COMPLETE, WIPE OFF EXCESS OIL.		xxx
1       	R. IF BLADE HAS A SINGLE PIECE RACE, INSERT PLASTIC BAG BETWEEN RACE AND THE BUTT, OVERLAP BACK AND SECURE WITH FILAMENT TAPE. ENSURE THE RACE WILL NOT MOVE WHEN COMPLETE.		xxx
	S. IF BLADE HAS A SPLIT RACE, APPLY MIL-L-23699 OIL TO THE SURFACE AND SEAL IN A PLASTIC BAG. WRAP THE RACE IN BUBBLE WRAP TO PREVENT DAMAGE. ATTACH SECURELY TO THE BLADE.		xxx
	T. PLACE A GREASE PROOF BAG OVER THE BUTT END AND FOLD TO CONFORM. SECURE WITH FILAMENT TAPE, KEEPING THE BLADE RACE AGAINST THE BLADE BUTT.		xxx
	U. SIGNAL FOR BLADE MOVE TO SHIPPING OR PROP AREA.		xxx
	CYCLE TIME60 TECH		
R955	ALERT S.B. FINAL PROCESS AND INSPECTION F.C. # 8 REFERENCE ALERT S.B. SERVICE # R315, R315A		xxx
	ENSURE ALL STENCILING HAS BEEN PERFORMED. ENSURE THE PROPER ALERT S.B. NUMBER IS STENCILED. ALSO INCLUDE "PS960A" PER THE PS.		xxx
(cont)	VERIFY THAT ALL PAPERWORK IS CORRECT.	•	*

## HSSCSC ROCK HILL HARDWARE FLOW TRAVELER

FORM NUMBER RH243

WORK ORDER NUMBER: 448

SERIAL NO.: 861398

PRINT DATE: 06-07-1994

PART NUMBER: RFC11M1-6A

PART NAME: 14RF-9 BLADE & PIN ASSEMBLY

Operation#	Operation Description	Repairman	2nd Verify
R955	PERFORM STANDARD PAPERWORK CLOSINGS.		
	CYCLE TIME: 20 TECH		

/e

A, TAKHMENT