
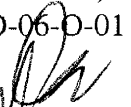


TECHNISONIC INDUSTRIES LIMITED	
MULTI-BAND P25 TDFM-7000 / TDFM-7300, AND SINGLE-BAND ANALOG & P25 TDFM-136A AIRBORNE SYSTEM	
INSTRUCTIONS for CONTINUED AIRWORTHINESS	
<u>ICA06067-1</u>	
Mfg: Eurocopter Type: AS-350	Prepared by: Avionics Design Services Checked by:  Robert Gow, DE 101 DAO-06-O-01 Released by:  Robert Gow, DE 101 DAO-06-O-01

Revision No.	Revision Date	Affected Pages	By
N/C	Sept. 25, 2006	ALL	T.Wilcox
A	April 14, 2009	All pages Rev A as per redlines.	R. Macdonald
B	June 29, 2009	All pages Rev B as per redlines.	R. Macdonald
C	November 10, 2009	Added Chapter 5-50-00.	T.Wilcox
D	November 15, 2010	Changed paragraph designation in Chapter 1-00-00. Amended Chapter 23-10-00. Changes as indicated by redlines in left margin.	T. Laflamme
E	May 8, 2012	Amended Chapters 1-00-00 and 23-10-00. Changes as indicated by redlines in left margin.	R. Macdonald

RELEASED

May 8, 2012

LOG OF PAGE REVISIONS

Chapter	Sub-Chapter	Page	Revision
Cover Page	-	-	E
Log of Page Revisions		i	E
Table of Contents		ii	E
1.0	1-00-00	1	E
		2	E
		3	E
4.0	4-00-00	1	E
5.0	5-20-00	1	E
		5-50-00	1
23.0	23-10-00	1	E
		2	E
		3	E
		4	E
		5	E
		6	E
APPENDIX A	-	APP-1	E

RELEASED

TABLE OF CONTENTS

CHAPTER 1.0 - INTRODUCTION	<u>1</u>
A. General	<u>1</u>
B. Reference Data	<u>2</u>
C. ICA Distribution	<u>2</u>
D. Acronyms	<u>2</u>
E. Supplement Identities:	<u>3</u>
CHAPTER 4.0 - AIRWORTHINESS LIMITATIONS	<u>1</u>
A. General	<u>1</u>
B. FAA Approval	<u>1</u>
CHAPTER 5.0 - TIME LIMITS/MAINTENANCE CHECKS	<u>1</u>
5-20-00: SCHEDULED CHECKS	<u>1</u>
A. General	<u>1</u>
B. Component Overhaul Schedule	<u>1</u>
5-50-00: UNSCHEDULED CHECKS	<u>1</u>
A. General	<u>1</u>
CHAPTER 23.0 - COMMUNICATIONS	<u>1</u>
23-10-00: TDFM-7000/7300 AND TDFM-136A TRANSCEIVERS	<u>1</u>
1.0 Description / Operation	<u>1</u>
101. Troubleshooting	<u>2</u>
201. Reserved	<u>2</u>
301. Servicing	<u>2</u>
401. Removal / Installation	<u>3</u>
501. Adjustment / Test	<u>5</u>
601. Inspection / Check	<u>5</u>
701. Cleaning / Painting	<u>5</u>
801. Approved Repairs	<u>6</u>
APPENDIX A	<u>1</u>

RELEASED

CHAPTER 1.0 - INTRODUCTION

A. General

The Technisonic Industries Limited Multi-band P25 Airborne TDFM-7000 / TDFM-7300 / TDFM-7300-3, or the Single-band P25 Airborne TDFM-136A system installation is defined by Avionics Design Services Master Drawing List MDL06067. The following equipment are installed:

CHAPTER	MAKE	MODEL / UNIT	P/N	LOCATION
23-10-00	Technisonic	TDFM-7000 / TDFM-7300 / TDFM-7300-3 Series Multi-band Digital FM Transceiver or TDFM-136A Series Single-band Digital FM Transceiver	TDFM-7000 / TDFM-7300 / TDFM-7300-3 or TDFM-136A	Center Pedestal
		RC-7000 / RC-7300 Remote Control Head (Optional)	RC-7000 / RC- 7300	
	Comant	VHF Antenna 118 - 137 MHz (As required)	CI-292-1	As per Structural Diagram 5001994 - See Appendix A
		VHF Antenna 136 - 176 MHz (As required)	CI-292-3	
		UHFLO Antenna 403 - 470 MHz (As required)	CI-275	
		UHFHI Antenna 450 - 512 MHz (As required)	CI-275	
		UHFHI (II) 450 - 520 MHz (As Required)	CI-285	
		800 Antenna 806 - 870 MHz (As required)	CI-306	
	800/700 (II) Antenna 700 - 870 MHz (As required)	CI-285		
		Flextronix	VHFLO Antenna 30 - 50 MHz (As required)	FLX-30508
Sensor Systems		VHFLO Antenna 30 - 50 MHz (As required)	S65-8282-34	

R E L E A S E D

B. Reference Data

- a) Access equipment in accordance with Eurocopter Description and Operation Manual, AS 350, Chapter 06.
- b) Perform all maintenance procedures in accordance with Eurocopter Standard Practices Manual, Chapter 20.
- c) Refer to Appendix A for documents required to supplement the information in this manual concerning the maintenance of the above components.

C. ICA Distribution

This document, and any revisions thereto, shall be distributed to authorized users of the applicable STC data. They will be distributed by courier, in electronic format or paper format.

D. Acronyms

VHF	Very High Frequency
VHFLO	Very High Frequency Low
FM	Frequency Modulation
AM	Amplitude Modulation
UHF	Ultra High Frequency
UHFHI	Ultra High Frequency High
UHFLO	Ultra High Frequency Low
MHz	Mega Hertz
RX	Receive
TX	Transmit
RF	Radio Frequency
STC	Supplemental Type Certificate
FAA	Federal Aviation Administration
ATA	Airline Transport Association

RELEASED

E. Supplement Identities: Chapter, Page, Paragraph Numbers

The supplement format follows the general requirements of Specification ATA-2200 with respect to Chapter and Title. However, since the extent of the supplemental information is relatively small in scope, the page numbering for each chapter is consecutive. Reference can be made to the following Chapter/Subject Listing:

<u>Subject</u>	<u>Page Number</u>
Title page	0
Table of Contents, Index, Page Listing	i, ii, iii, etc.
Content page(s)	1, 2, 3, etc.

Paragraph or component titles are listed via A. B. C. D. etc.

Sub-paragraphs are listed according to:

<u>Subject</u>	<u>Sub-Para. Number</u>
Description / Operation	1.0
Troubleshooting	101
(Reserved)	201
Servicing	301
Removal / Installation	401
Adjustment / Test	501
Inspection / Check	601
Cleaning / Painting	701
Approved Repairs	801

RELEASED

CHAPTER 4.0 - AIRWORTHINESS LIMITATIONS

A. General

No airworthiness limitations associated with this type design change.

B. FAA Approval

The following is for installations requiring FAA STC Approval:

The Airworthiness Limitations section is FAA-approved and specifies maintenance required under 43.16 and 91.403 of the Federal Aviation Regulation, unless an alternative program has been FAA approved.

R E L E A S E D

CHAPTER 5.0 - TIME LIMITS/MAINTENANCE CHECKS
5-20-00: SCHEDULED CHECKS

A. General

Perform the following General Visual Inspections. The inspections are to be performed referencing the applicable wiring diagrams included in Appendix A. Follow standard maintenance practices of the EC AS 350 Master Servicing Recommendations, Chapter 5.20.01.

Description	Inspection	Inspection Details
Antenna Installation;	Type "T" - 500 hours OR Type "A" - 24 months Whichever occurs first.	Perform visual inspection of external skin around periphery of connector cutouts and all rivet locations. Check for damage such as fastener deterioration, skin cracks, corrosion, paint exfoliation and other signs of structural deterioration of the skin structure. Any flaw indication is cause for rejection.
TDFM-7000 / TDFM-7300 / TDFM-7300-3 / TDFM-136A Transceiver; RC-7000 / RC-7300 Remote Control Head (if installed); Wiring;		Visually examine all external surfaces for possible damage. Check external connectors for dust, corrosion, or damage. Check external parts for loose or damaged hardware. Make visual check of wiring and connectors for damage.

B. Component Overhaul Schedule

No component overhaul required for this type design change.

RELEASED

CHAPTER 5.0 - TIME LIMITS/MAINTENANCE CHECKS
5-50-00: UNSCHEDULED CHECKS

A. General

Hard Landing

Perform inspection, in accordance with Eurocopter AS350 Maintenance Manual, Chapter 5-53-00 - Inspection Following An Incident, Card 05.53.00.605.

Aircraft Struck by Lightning

Perform inspection, in accordance with Eurocopter AS350 Maintenance Manual, Chapter 5-53-00 - Inspection Following An Incident, Card 05.53.00.609.

RELEASED

CHAPTER 23.0 - COMMUNICATIONS

23-10-00: TDFM-7000/7300 AND TDFM-136A TRANSCEIVERS

1.0 Description / Operation

The TDFM-7000 / TDFM-7300 / TDFM-7300-3 and TDFM-136A transceivers are installed in the center pedestal.

TDFM-7000 / TDFM-7300 / TDFM-7300-3 are airborne multi-band radio capable of operation in conventional analog and P25 digital FM systems, SmartNet/SMART ZONE trunking systems and P25 9600 trunking systems. Type I RF modules are available in VHF, UHFLO, UHFHI and 800 MHz bands. Type II RF modules support additional optional features not available in type I modules and are currently available in VHF, UHFLO, UHFHI and 700/800 MHz.

TDFM-7300 has a model variant known as the TDFM-7300-3. This variant has a production option to replace the built-in VHF 138 to 174 MHz with a built-in VHF AM 118 to 137 MHz Air band for Band 5 in the transceiver. The remaining four digital bands which are available using P25 modules for Bands 1 through 4 are unchanged from the TDFM-7300 transceiver.

The optional RC-7000 / RC-7300 remote controller is installed in the center pedestal. It is designed to be a secondary control point for the TDFM-7000 / TDFM-7300 transceiver and operates the same as the TDFM-7000 / TDFM-7300.

TDFM-136A is a single-band airborne analog and P25 digital FM system which has the capability of split operation on pre-assigned frequencies, and the ability to monitor 2 guard frequencies in the 136 to 174 MHz band.

The TDFM-7000 has a 5-line display and a keypad and a rotary knob provide the operator control of up to 4 RF modules installed in the unit. The TDFM-7300 has a 6-line display and keypad similar to the TDFM-7000 in addition to a standard VHFLO 30 to 50 MHz band which is the fifth band in addition to 4 assignable bands using RF modules as in the TDFM-7000. The display is showing the activity of all bands as well as the menu of the active band, selected by pressing the BAND key. The knob has multiple functions including volume, and channel. The microphone, key line and headphone audio can be configured separately for each of the 4 bands therefore switching from band to band is performed at an audio panel such as the Technisonic A71X series. This allows for separate and simultaneous operation on each of the bands just like having 4 separate radios. The transceiver can also be configured so that all bands are available on one output. In this configuration, the BAND key on the transceiver must perform switching between bands and the user can only transmit on one band at a time.

The TDFM-136A has a 48-character, and 2-line LED matrix display, with data entry and function control accomplished using the 12-button keypad. The transceiver can operate without restriction on any split frequency pair in the single-band and also incorporates a two channel synthesized guard receiver.

101. Troubleshooting

NOTE:

Prepare aircraft in accordance with the procedures of the Eurocopter AS 350 Standard Practices Manual, Chapter 20.

Condition	Action
No power.	Ensure connectors are properly affixed. Pull and reset applicable circuit breakers.
Not operating correctly.	TDFM-7000 / TDFM-7300 / TDFM-7300-3 / TDFM-136A; Inspect wiring and ring out harness in accordance with Avionics Design Services WD06010 and correct irregularities as required. RC-7000 / RC-7300; Inspect wiring and ring out harness in accordance with Avionics Design Services WD06010 and correct irregularities as required.
Not operating correctly after above action completed.	TDFM-7000 / TDFM-7300 / TDFM-7300-3 / TDFM-136A; Remove in accordance with Section 401. A of this chapter and return to Technisonic Industries Ltd. for evaluation and repair. RC-7000 / RC-7300; Remove in accordance with Section 401. B of this chapter and return to Technisonic Industries Ltd. for evaluation and repair.

201. Reserved

Not Applicable

301. Servicing

There are no servicing procedures associated with the components of this chapter.

RELEASED

401. Removal / Installation

NOTES:

1. Prepare aircraft in accordance with the procedures of the Eurocopter AS 350 Standard Practices Manual, Chapter 20.02, General Maintenance.
2. The following fuses are applicable to the components of this chapter.

FUSE LABEL	AMPS	LOCATION	BUS
FM RADIO (TDFM-7000/7300/7300-3) or FM RADIO (TDFM-136A)	7.5A 3 A	ELECTRICAL MASTER BOX UNIT	28VDC AVIONICS BUS PP12
FM CONTRL (TDFM-7000/7300/7300-3 ONLY as applicable)	1A	ELECTRICAL MASTER BOX UNIT	28VDC AVIONICS BUS PP12

A. TDFM-7000 / TDFM-7300 / TDFM-7300-3 / TDFM-136A Series Transceivers

Removal

- a) Remove four Dzus fasteners from front of transceiver.
- b) Slide transceiver forward of the panel cutout.
- c) Disconnect electrical connector and antenna connector(s) from the rear of the transceiver.
- d) Remove transceiver from the panel cutout.

Installation

- a) Connect electrical connector and antenna connector(s) to the rear of the transceiver.
- b) Slide transceiver into the panel cutout.
- c) Secure four Dzus fasteners on the front of transceiver.
- d) Perform the Function Test in accordance with Sections 501.A, of this chapter.

R E L E A S E D

B. RC-7000 / RC-7300 Remote Control Head (optional)

Removal

- a) Unlock four Dzus fasteners from front of RC-7000 / RC-7300.
- b) Slide RC-7000 / RC-7300 forward of the panel cutout.
- c) Disconnect electrical connector from the rear of the RC-7000 / RC-7300.
- d) Remove RC-7000 / RC-7300 from the panel cutout.

Installation

- a) Connect electrical connector to the rear of the RC-7000 / RC-7300.
- b) Slide RC-7000 / RC-7300 into the panel cutout.
- c) Secure four Dzus fasteners on the front of RC-7000 / RC-7300.
- d) Perform the Function Test in accordance with Sections 501.A, of this chapter.

C. Antenna(s)

Removal

- a) Gain access to antenna.
- b) Disconnect coaxial cable from the antenna.
- c) Remove the sealant from periphery of antenna base.
- d) Remove screws and washers securing the antenna to the mounting surface.
- e) Remove the antenna from the aircraft.

Installation

- a) Re-connect coaxial cable to antenna.
- b) Secure fastening screws used to attach antenna to fuselage.
- c) Seal around periphery of antenna with PRC-DeSoto PR-1422B2, or equivalent.
- d) Perform electrical bonding procedure in accordance with Standard Practices Manual, Section 20.02.07.101. Ensure an electrical bonding reading of .003 ohms between the antenna base plate and ground.
- e) Perform the Function Test in accordance with Sections 501.A, of this chapter.

RELEASED

501. Adjustment / Test

A. Function Test

NOTE:

If only the transceiver is installed, perform the following function test using the front panel of the TDFM-7000 / TDFM-7300 / TDFM-7300-3 / TDFM-136A. If the transceiver and the remote controller are installed, perform the following function test from the front panel of the RC-7000 / RC-7300.

- a) Power up the Aircraft's avionics systems. Turn on the transceiver and remote controller (as applicable).
- b) Adjust the volume levels as required.
- c) Press the squelch defeat button to open receiver.
- d) Ensure receiver is operational, the RX status indicator light is on and channels are open.
- e) Tune an operating frequency and carry out a transmit / receive. Ensure the TX status indicator lights when receiver is transmitting and RX status indicator lights when receiver is receiving.
- f) Check the operation of all front panel controls.

B. Weight and Balance

Refer to Structural Diagram 5001994, included in Appendix A, for the Weight & Balance.

601. Inspection / Check

Inspections for this chapters components are to be performed in accordance with Chapter 5-20-00, paragraph A, of these Instructions for Continued Airworthiness.

701. Cleaning / Painting

There are no additional cleaning or painting procedures to be added to the Aircraft Maintenance Manual for the components of this chapter.

801. Approved Repairs

A. TDFM-7000 or TDFM-7300 or TDFM-7300-3 or TDFM-136A Transceiver / RC-7000 or RC-7300 Remote Controller

There are no approved field repairs for the transceiver or controller. Failed units caused by defective parts or workmanship, should be returned to:

Technisonic Industries Limited
240 Traders Blvd. E
Mississauga, ON
L4Z 1W7
[905] 890-2113

B. Antennas

The antennas associated with this system are non-repairable. If they are determined to be faulty they must be removed and replaced.

APPENDIX A		
ITEM	TITLE	REV*
1	WIRING DIAGRAM WD06010 TIL FM TRANSCEIVER EC AS-350	C
2	STRUCTURAL DIAGRAM 5001994 TECHNISONIC ANTENNA INTALLATION - AS350	C

* Or later approved revision.

R E L E A S E D