TECHNISONIC INDUSTRIES LIMITED

P25 TDFM TRANSCIEVER AIRBORNE SYSTEM

INSTRUCTIONS for CONTINUED AIRWORTHINESS

ICA13015-2

Mfg: Bell
Type: 206

Prepared by: Avionics Design Services

Checked by: Catalin Voicu
Vice President Engineering

Released by: Robert Gow
President and DAO Manager

<table>
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<th>Revision No.</th>
<th>Revision Date</th>
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<td>ALL</td>
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<td>Changes as per redlines in margin. All pages revision A.</td>
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June 29, 2014
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<td>3</td>
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<td></td>
<td></td>
<td>5</td>
<td>D</td>
</tr>
<tr>
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CHAPTER 1.0 - INTRODUCTION

A. General

The Technisonic Industries Limited Single-band P25 Airborne TDFM-9000 Series system installation is defined by Avionics Design Services Master Drawing List MDL12026. The following equipment are installed:

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>MAKE</th>
<th>MODEL / UNIT</th>
<th>P/N</th>
<th>LOCATION</th>
</tr>
</thead>
</table>
| 23-10-00| Technisonic | TDFM-9000 Multi-band Digital FM Transceiver  
or TDFM-9100 Multi-band Digital FM Transceiver  
or TDFM-9200 Multi-band Digital FM Transceiver  
or TDFM-9300 Multi-band Digital FM Transceiver | TDFM-9000  
or TDFM-9100  
or TDFM-9200  
or TDFM-9300 | Instrument Panel  
or Pedestal |
|         |         | RC-9000  
or RC-9100  
Remote Control Unit  
If installed | RC-9000  
or RC-9100 | Mission Crew Station  
As per Structural Diagram 5004271  
and EO13015-4  
See Appendix A |
<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>MAKE</th>
<th>MODEL / UNIT</th>
<th>P/N</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>23-10-00 (continued)</td>
<td>Comant Industries</td>
<td>Dual Band / Dual Port Antenna</td>
<td>CI-295-250</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dual Port Antenna</td>
<td>CI-295-200</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radiophone Antenna</td>
<td>CI-285</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>806-870 MHz Antenna</td>
<td>CI-306</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radiophone Antenna</td>
<td>CI-275</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FM 136 to 174 MHz Ext Band Antenna</td>
<td>CI-292-4</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>FM 136 to 174 MHz Ext Band Antenna</td>
<td>CI-292-3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>VHF AM 118 to 138 MHz Antenna</td>
<td>CI-292-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rami Antennas</td>
<td>VHF/UHF/700/800 Antenna</td>
<td>AV-925</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>UHF 225 to 400 MHz Antenna</td>
<td>AT-256/ARC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>VHF/UHF Antenna</td>
<td>AT-1108/ARC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cooper Antennas</td>
<td>Multi-Band FM COMM Antenna</td>
<td>21-50-45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Foxtronics</td>
<td>Antenna / Tuner, 30 to 50 MHz</td>
<td>FLX-3050B</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sensor Systems</td>
<td>Alternate Antenna, 30 to 50 MHz</td>
<td>S65-8282-34</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>UHF AM 225 to 400 MHz Antenna</td>
<td>S65-8282-51</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>UHF Antenna 225 to 400 MHz</td>
<td>S65-1227( )</td>
<td></td>
</tr>
</tbody>
</table>

The inspection and maintenance practices described herein relate to the Multi-band P25 Airborne transceiver system installation as described above. Component part numbers and wiring diagrams are included in Appendix A.

B. Reference Data

a) Access equipment in accordance with Bell Helicopter Maintenance Manual, Bell 206, Chapter 6 and Chapter 95.


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**

- **ATA** Airline Transport Association
- **AM** Amplitude Modulation
- **FAA** Federal Aviation Administration
- **FM** Frequency Modulation
- **MHz** Mega Hertz
- **RF** Radio Frequency
- **RX** Receive
- **STC** Supplemental Type Certificate
- **TX** Transmit
- **UHF** Ultra High Frequency
- **VHF** Very High Frequency
- **VHFLO** Very High Frequency Low
E. **Supplement Identifiers:** 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:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title page</td>
<td>0</td>
</tr>
<tr>
<td>Table of Contents, Index, Page Listing</td>
<td>i, ii, iii, etc.</td>
</tr>
<tr>
<td>Content page(s)</td>
<td>1, 2, 3, etc.</td>
</tr>
</tbody>
</table>

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

Sub-paragraphs are listed according to:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Sub-Para. Number</th>
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</thead>
<tbody>
<tr>
<td>Description / Operation</td>
<td>1.0</td>
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<tr>
<td>Troubleshooting</td>
<td>101</td>
</tr>
<tr>
<td>(Reserved)</td>
<td>201</td>
</tr>
<tr>
<td>Servicing</td>
<td>301</td>
</tr>
<tr>
<td>Removal / Installation</td>
<td>401</td>
</tr>
<tr>
<td>Adjustment / Test</td>
<td>501</td>
</tr>
<tr>
<td>Inspection / Check</td>
<td>601</td>
</tr>
<tr>
<td>Cleaning / Painting</td>
<td>701</td>
</tr>
<tr>
<td>Approved Repairs</td>
<td>801</td>
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</tbody>
</table>
CHAPTER 4.0 - AIRWORTHINESS LIMITATIONS

A. General

No airworthiness limitations associated with this type design change.

B. FAA Approval  (Per Article III of the Bilateral Aviation Agreement (BASA 2000) and Section III, Para. 3.2.2 of the Implementation Procedures, 2008)

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.
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. Prepare aircraft in accordance with the procedures of the Bell Helicopter 206 Maintenance and Overhaul Instructions Manual.

<table>
<thead>
<tr>
<th>Description</th>
<th>Inspection</th>
<th>Inspection Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna Installation;</td>
<td>100 hours</td>
<td>Perform general 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.</td>
</tr>
<tr>
<td>TDFM-9000, TDFM-9100, TDFM-9200, or TDFM-9300 Transceiver;</td>
<td></td>
<td>Visually examine all external surfaces for possible damage. Check external connectors for dust, corrosion, or damage. Check external parts for loose or damaged hardware.</td>
</tr>
<tr>
<td>Wiring;</td>
<td></td>
<td>Make visual check of wiring and connectors for damage.</td>
</tr>
<tr>
<td>RC-9000, or RC-9100 Remote Control Unit;</td>
<td></td>
<td>Visually examine all external surfaces for possible damage. Check external connectors for dust, corrosion, or damage. Check external parts for loose or damaged hardware.</td>
</tr>
<tr>
<td>Wiring;</td>
<td></td>
<td>Make visual check of wiring and connectors for damage.</td>
</tr>
</tbody>
</table>

B. Component Overhaul Schedule

No component overhaul required for this type design change.
CHAPTER 5.0 - TIME LIMITS/MAINTENANCE CHECKS
5-50-00: UNSCHEDULED CHECKS

A. General

Bell 206 A/B Series

Hard Landing

Perform Hard Landing Conditional Inspection in accordance with BHT-206A/B-SERIES-MM-1, Chapter 5-00-00, Section 5-33.

Lightning Strike

Perform Lightning Strike Conditional Inspection in accordance with BHT-206A/B-SERIES-MM-1, Chapter 5-00-00, Section 5-39.

Bell 206 L Series

Hard Landing

Perform Hard Landing Conditional Inspection in accordance with BHT-206L-MM-1, Chapter 5-00-00, Section 5-31.

Lightning Strike

Perform Lightning Strike Conditional Inspection in accordance with BHT-206L-MM-1, Chapter 5-00-00, Section 5-36.
CHAPTER 23.0 - COMMUNICATIONS
23-10-00: TDFM TRANSCEIVER

1.0 Description / Operation

The TDFM-9000, TDFM-9100, TDFM-9200, or TDFM-9300 transceiver is installed in the instrument panel or pedestal. The RC-9000 remote control unit is installed as an option on secondary structure at a mission crew location.

TDFM-9000 Series is a multi-band airborne analog and digital P25 9600 trunking system FM system. Frequencies in the VHF, UHF-LO, UHF-HI and 700-800 MHz bands are supported.

TDFM-9300, or TDFM-9200 have one, or up to two analog modules installed respectively. Each analog module is in the space of two of the digital modules.

The TDFM-9000, TDFM-9200, and TDFM-9300 transceivers have a colour TFT display with data entry and function control accomplished using the 24-button keypad.

The TDFM-9100 transceiver has green LED night vision display with data entry and function control accomplished using the 18 button keypad.

The RC-9000, or RC-9100 provides transceiver functions to mission crew. The display / control panel is the same as the corresponding TDFM-9000 series transceiver(s).

101. Troubleshooting

NOTE:
Prepare aircraft in accordance with the procedures of the Bell Helicopter 206 Maintenance and Overhaul Instructions Manual.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No power.</td>
<td>Ensure connectors are properly affixed. Pull and reset applicable circuit breakers.</td>
</tr>
<tr>
<td>Not operating correctly.</td>
<td>Inspect wiring and ring out harness in accordance with Avionics Design Services WD13005 and correct irregularities as required.</td>
</tr>
<tr>
<td>Not operating correctly after above action completed.</td>
<td>Remove in accordance with Section 401. A of this chapter and return to Technisonic Industries Ltd. for evaluation and repair.</td>
</tr>
</tbody>
</table>

201. Reserved

Not Applicable

November 24, 2014
301. Servicing

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

401. Removal / Installation

**NOTES:**

1. The following circuit breakers are applicable to the components of this chapter and must be pulled and collared before beginning maintenance procedures.

<table>
<thead>
<tr>
<th>CB LABEL</th>
<th>AMPS</th>
<th>LOCATION</th>
<th>BUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM RADIO</td>
<td>10 A</td>
<td>OVERHEAD CONSOLE</td>
<td>28VDC AVIONICS BUS</td>
</tr>
<tr>
<td>FM CONTROL</td>
<td>2.5 A</td>
<td>ELECTRICAL MASTER BOX UNIT</td>
<td>28VDC AVIONICS BUS</td>
</tr>
<tr>
<td>FLX ANTENNA TUNER (IF INSTALLED)</td>
<td>1.5 A</td>
<td>OVERHEAD CONSOLE</td>
<td>28VDC AVIONICS BUS</td>
</tr>
</tbody>
</table>

2. Prepare aircraft in accordance with the procedures of the Bell Helicopter 206 Maintenance and Overhaul Instructions Manual.

3. Remove collars from the above circuit breakers and reset prior to performing required tests.

A. TDFM-9000, TDFM-9100, TDFM-9200, or TDFM-9300 Transceiver

**Removal**

a) Pull and collar the above indicated circuit breakers.

b) Release six (four on TDFM-9100) Dzus fasteners from front of transceiver.

c) Slide transceiver forward of the panel cutout.

d) Disconnect electrical connector and antenna connector(s) from the rear of the transceiver.

e) 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 six (four on TDFM-9100) Dzus fasteners on the front of transceiver.

d) Remove collar and reset the above indicated circuit breakers.

e) Perform the Function Test in accordance with Sections 501.A, of this chapter.
B. RC-9000, or RC-9100 Remote Control Unit

Removal
a) Pull and collar the above indicated circuit breakers.
b) Release six (four on RC-9100) Dzus fasteners from front of remote control unit.
c) Slide remote control unit forward of the panel cutout.
d) Disconnect electrical connector from the rear of the remote control unit.
e) Remove remote control panel from the panel cutout.

Installation
a) Reconnect electrical connector to the rear of the remote control unit.
b) Slide remote control unit into the panel cutout.
c) Secure six (four on RC-9100) Dzus fasteners on the front of remote control unit.
d) Remove collars and reset the above indicated circuit breakers.
e) Perform the Function Test in accordance with Sections 501.A, of this chapter.

C. Antenna(s)

Removal
a) Pull and collar the above indicated circuit breakers.
b) Gain access to antenna(s).
c) Disconnect coaxial cable(s) from the antenna(s).
d) Remove the sealant from periphery of antenna base(s).
e) Remove screws and washers securing the antenna(s) to the mounting surface(s).
f) Remove the antenna(s) from the aircraft.

Installation
a) Re-connect coaxial cable(s) to antenna coax connector(s).
b) Secure fastening screws used to attach antenna(s) to fuselage.
c) Seal around periphery of antenna(s) with PRC-DeSoto PR-1422B2, or equivalent.
e) Remove collars and reset the above indicated circuit breakers.
f) Perform the Function Test in accordance with Sections 501.A, of this chapter.
501. Adjustment / Test

A. Function Test

NOTE:
Perform the following function test using the front panel of the TDFM-9000, TDFM-9100, TDFM-9200, or TDFM-9300 Transceiver.

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 guard knob to defeat squelch 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 5004271, included in Appendix A, for the Weight & Balance.

601. Inspection / Check

Inspections for this chapter's 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-9000, TDFM-9100, TDFM-9200, and TDFM-9300 Transceiver**

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. RC-9000, and RC9100 Remote Control Units**

There are no approved field repairs for the remote control unit. 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

**C. Antennas**

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

901. **Storage**

There are no storage procedures associated with the components of this chapter.
# APPENDIX A

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TITLE</th>
<th>REV*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WIRING DIAGRAM WD13005 ‘TIL FM TRANSCEIVER INSTALL, BELL 206’</td>
<td>D</td>
</tr>
<tr>
<td>2</td>
<td>STRUCTURAL DIAGRAM 5004271 ‘TECHNISONIC ANTENNA INSTALLATION - BELL 206’</td>
<td>D</td>
</tr>
<tr>
<td>3</td>
<td>ENGINEERING ORDER EO13015-4 TECHNISONIC RC-9100 REMOTE CONTROL PANEL OPTION (BELL 206)</td>
<td>2</td>
</tr>
</tbody>
</table>

* Or later approved revision.