

| Description  | Modèle/Make | Date (AA/MM/JJ)                 | Code ATA |
|--|-------------|---------------------------------|----------|
| Numéro de pièce / Part Number  |             | Numéro de série / Serial Number |          |
| <b>Description de la défectuosité ou du travail à effectuer</b> /Description of discrepancy or work to be completed<br><hr/> <hr/> |             |                                 |          |
| <b>Signature</b>   |             |                                 |          |

—

| Temps de Travail/Working Time | Début/Begin | Fin/End | Total                    | Visa Insp.      |
|-------------------------------|-------------|---------|--------------------------|-----------------|
|                               |             |         |                          |                 |
|                               |             |         |                          |                 |
|                               |             |         |                          |                 |
| Outil calibré/Calibrated Tool | P/N         | S/N     | Prochaine cal./Next cal. | Visa inspection |
|                               |             |         |                          |                 |
| Outil calibré/Calibrated Tool | P/N         | S/N     | Prochaine cal./Next cal. | Visa inspection |
|                               |             |         |                          |                 |
| Outil calibré/Calibrated Tool | P/N         | S/N     | Prochaine cal./Next cal. | Visa inspection |
|                               |             |         |                          |                 |
| Outil calibré/Calibrated Tool | P/N         | S/N     | Prochaine cal./Next cal. | Visa inspection |
|                               |             |         |                          |                 |

#### **WP: Travail effectué-Work Performed**

**SCA:** Certification après maintenance-Shop Certification Authority Snag number

## **Numéro du rapport/**

1

### **Pièces et matériaux installés/Installed parts and matériaux**

**Rapport de suivi de travail/Pass-over Report**

## 5.3 PERFORMANCE TEST PROCEDURE

This section is a cover on return-to-service performance test. The unit shall pass this performance test after removal of covers, modification, alignment, or repair of the unit before return to service. The performance test can also be used to locate faults within the radio.

### TEST DATA SHEET

Serial No. \_\_\_\_\_

#### 5.3.1 Control Functions

NOTE: The term "OK" indicates that particular function is operating properly.

5.3.1.A. Display: \_\_\_\_OK viewing angle (straight on).

5.3.1.B. Frequency Controls:

| <u>Increment</u> | Roll Over Characteristics | <u>Decrement</u> | Roll Under Characteristics |
|------------------|---------------------------|------------------|----------------------------|
| MHz____OK        | 135 to 118 MHz            | MHz____OK        | 118 to 135 MHz             |
|                  | 136 to 118 MHz            |                  | 118 to 136 MHz             |
| kHz____OK        | 0.975 to 0.000 kHz        | kHz____OK        | 0.000 to 0.975 kHz         |

5.3.1.C. Transfer Button: \_\_\_\_OK (switches from an active to standby frequency).

5.3.1.D. Remote Transfer: \_\_\_\_OK (switches from an active to standby frequency).

5.3.1.E. Chan Button: \_\_\_\_OK (enters channel mode).

5.3.1.F. Remote Channel Increment: \_\_\_\_OK (increments channel).

5.3.1.G. Program Secure:      Channel program secured \_\_\_\_OK.  
                                        Channel un-program secured \_\_\_\_OK.

5.3.1.H. Dim Select:

open position \_\_\_\_OK (Display brightness follows 13.75 V lighting bus).

grounded position \_\_\_\_OK (Display brightness follows 27.5 V lighting bus).

aircraft supply position \_\_\_\_OK (Display at half brightness).

5.3.1.I. Memory: \_\_\_\_OK.

When unit is turned "OFF" and then back "ON" that the last display status is the same.

5.3.1.J. 25 kHz Switch: \_\_\_\_OK

The 25 kHz switch increments in steps of 25 kHz.

5.3.2 Receiver

NOTE: Disable the audio compressor by grounding pin 10 on P96A1, P97A1.

5.3.2.A. Sensitivity:

- 5.3.2.A.1 Input a 2 uV standard audio test signal into the unit and monitor receiver audio while switching modulation off.

|        |               |       |         |
|--------|---------------|-------|---------|
| S+N/N: | 118.000 MHz   | _____ | NLT 6dB |
|        | 126.975 MHz   | _____ | NLT 6dB |
|        | 135.975 MHz   | _____ | NLT 6dB |
|        | [136.975 MHz] | _____ | NLT 6dB |

- 5.3.2.A.2 Input a 100 uV standard audio test signal into the unit and monitor receiver audio while switching modulation off.

Quieting: 126.975 MHz \_\_\_\_\_ NLT 25 dB S+N/N.

- 5.3.2.B. AGC Characteristics: 126.975 MHz \_\_\_\_\_ NMT 3 dB

With a standard audio test signal vary from 5 uV to 20,000 uV.

5.3.2.C. Selectivity:

Using the AGC voltage produced by a 3 uV standard signal reference, measure and record the frequencies which reproduce the AGC REF voltage at 6 dB and 60 dB above the reference input.

- 5.3.2.C.1 6 dB Bandwidth:

126.975 MHz:

|       |       |                     |       |       |                                    |
|-------|-------|---------------------|-------|-------|------------------------------------|
| Above | _____ | $\geq$ 126.985 MHz  | Below | _____ | $\leq$ 126.965 MHz - 25 kHz units  |
|       | _____ | $\geq$ 126.9895 MHz |       | _____ | $\leq$ 126.9605 MHz - 50 kHz units |

- 5.3.2.C.2 60 dB Bandwidth:

126.975 MHz:

|       |       |                    |       |       |                                   |
|-------|-------|--------------------|-------|-------|-----------------------------------|
| Above | _____ | $\geq$ 126.995 MHz | Below | _____ | $\leq$ 126.955 MHz - 25 kHz units |
|       | _____ | $\geq$ 127.015 MHz |       | _____ | $\leq$ 126.935 MHz - 50 kHz units |

- 5.3.2.D. Volume Gain Control: Min\_\_\_\_NMT 22mV Max\_\_\_\_NLT 7.07V into 500 ohms

With Audio Amp board installed Max\_\_\_\_NLT 4.5V into 500 ohms

Input a 100 uV standard audio test signal into the unit. Disable squelch by pulling the volume knob out and monitor the audio output.

- | 5.3.2.E. Audio Distortion: (Optional)

350 Hz = \_\_\_\_NMT 15% 1 kHz = \_\_\_\_NMT 15% 2.5 kHz = \_\_\_\_NMT 15%

Input a 100 uV 85% modulated signal between 350 Hz and 2500 Hz. The distortion shall be not more than 15% at 7.07 Vrms into 500 ohms. Modulation

is referenced to 1 kHz, compressor enabled. (This is an optional test that requires a distortion analyzer).

5.3.2.F. Audio Response:

350 Hz = \_\_\_\_ NMT 6dB down    1 kHz = \_\_\_\_ 0dB    2.5 kHz = \_\_\_\_ NMT 6dB down

Input a 100 uV standard audio test signal into the unit. Disable the audio compressor by grounding pin 10 on P96A1, P97A1. Monitor the receiver output.

5.3.2.G. Compressor: \_\_\_\_\_ NMT +/- 3 dB

Input a 100 uV standard audio test signal into the unit. Vary the modulation from 30% to 85%.

5.3.2.H. Squelch:

NOTE: Squelch adjustments must be performed in the following order:

5.3.2.H.1 Set the unit to 126.975 MHz.

5.3.2.H.2 Carrier/Noise Squelch set to open at 2 uV (+1 uV, -0.5 uV) and close at NMT 4 dB below the squelch opening.

5.3.2.H.3 Carrier/Noise Squelch \_\_\_\_\_ OK.

5.3.2.H.4 With unit set to 126.975 MHz, input an 8 kHz 85% modulated signal into the unit. Set the carrier squelch to open at +/- 12.5 uV.

5.3.2.H.5 Carrier Squelch \_\_\_\_\_ OK.

5.3.2.H.6 Intercom: \_\_\_\_\_ NLT 100 mW into 500 ohm.

Input a 100 mV 1 kHz signal into Mic Intercom, pin K of P96A1, P97A1.

5.3.3 Transmitter

5.3.3.A. RF Power Output:

Connect a wattmeter to the antenna output and record the following unmodulated values.

Set A + input to \_\_\_\_\_ 13.75 Vdc @ pin 11 \_\_\_\_\_  
\_\_\_\_\_  
27.5 Vdc @ pin 12 \_\_\_\_\_

118.00 MHz \_\_\_\_\_ 5.0 watts Min. 13.75 V units  
\_\_\_\_\_  
5.0 watts Min. 27.5 V units

126.97 MHz \_\_\_\_\_ 5.0 watts Min. 13.75 V units  
\_\_\_\_\_  
5.0 watts Min. 27.5 V units

135.97 MHz \_\_\_\_\_ 5.0 watts Min. 13.75 V units  
\_\_\_\_\_  
5.0 watts Min. 27.5 V units

After 2 minutes continuous key:

NOTE: Units with Mic-key Disable will shut down transmitter after 2 minutes. To extend transmit time re-key transmitter.

118.00 MHz       1.25 watts Min. 13.75 V units  
 1.25 watts Min. 27.5 V units

126.97 MHz       1.25 watts Min. 13.75 V units  
 1.25 watts Min. 27.5 V units

135.97 MHz       1.25 watts Min. 13.75 V units  
 1.25 watts Min. 27.5 V units

Low Voltage:

With a low line voltage input the following values should be observed:

22 Vdc for 27.5 V units  
11 Vdc for 13.75 V units

118.00 MHz       1.25 watts Min. 13.75 V units  
 1.25 watts Min. 27.5 V units

126.97 MHz       1.25 watts Min. 13.75 V units  
 1.25 watts Min. 27.5 V units

135.97 MHz       1.25 watts Min. 13.75 V units  
 1.25 watts Min. 27.5 V units

### 5.3.3.B. Modulation Capability:

Input a standard modulator test signal into the microphone audio. Using the linear detector, measure the Tx modulation.

5.3.3.B.1 118.000 MHz  NLT 70%  
126.97 MHz  NLT 70%  
135.97 MHz  NLT 70%

### 5.3.3.B.2 Carrier Noise Level:

Modulate the carrier with 70% at 1000 Hz.

Noise on the carrier with modulation removed shall be NLT:

118.00 MHz  40dB 126.97 MHz  40dB 135.95 MHz  40dB

### 5.3.3.B.3 Demodulated Audio Distortion (Optional):

350 Hz =  15% Max 1 kHz =  15% Max 2.5 kHz =  15% Max

(This is an optional test that requires a distortion analyzer).

### 5.3.3.B.4 Sidetone Audio Response:

350 Hz = \_\_\_\_ NMT 6dB down      1 kHz = \_\_\_\_ 0      2.5 kHz = \_\_\_\_ NMT 6dB down

Input a standard modulator signal, except voltage is 0.2 Vrms, into Mic Audio. Monitor the audio output.

#### 5.3.3.B.5 Demodulated Audio Response:

350 Hz = \_\_\_\_ NMT 6dB down      1 kHz = \_\_\_\_ 0      2.5 kHz = \_\_\_\_ NMT 6dB down

Input a standard modulator signal, except voltage is 0.2 Vrms, into Mic Audio. Observe the demodulated RF output from the linear detector on an audio wattmeter.

#### 5.3.3.C. Frequency Stability: \_\_\_\_\_ NMT +/- 200 Hz

Measured after 2 hours "OFF" period.

#### 5.3.4 Audio Amplifier

##### 5.3.4.A. Mute: \_\_\_\_\_ NLT 40 dB down

With the volume control at minimum and a 1 kHz 4.47 V audio signal applied to AUX1 audio input when the PTT input is NMT + 0.5 volts.

##### 5.3.4.B. Audio Output Power:

###### 5.3.4.B.1 Comm \_\_\_\_\_ (4 W min/ 13.75 V unit, 8 W min/ 27.5 V unit)

Insert a 100 uV RF carrier modulated 30% at 1 kHz into the unit. Monitor the 4 ohm audio output.

###### 5.3.4.B.2 Aux1 \_\_\_\_\_ (4 W min/ 13.75 V unit, 8 W min/ 27.5 V unit)

Insert a 1 kHz 4.47 V (40 mW @ 500 ohms) for 27.5 V units, 3.16 V (20 mW @ 500 ohms) for 13.75 V units, audio signal into the Aux1 input. With the volume control at minimum, monitor the 4 ohm audio output.

###### 5.3.4.B.3 Aux2 \_\_\_\_\_ (4 W min/ 13.75 V unit, 8 W min/ 27.5 V unit)

Insert a 1 kHz 4.47 V (40 mW @ 500 ohms) for 27.5 V units, 3.16 V (20 mW @ 500 ohms) for 13.75 V units, audio signal into the Aux2 input. With the volume control at minimum, monitor the 4 ohm audio output.

###### 5.3.4.B.4 Aux3 \_\_\_\_\_ (4 W min/ 13.75 V unit, 8 W min/ 27.5 V unit)

Insert a 1 kHz 4.47 V (40 mW @ 500 ohms) for 27.5 V units, 3.16 V (20 mW @ 500 ohms) for 13.75 V units, audio signal into the Aux3 input. With the volume control at minimum, monitor the 4 ohm audio output.

##### 5.3.4.C. Quieting: S+N/N \_\_\_\_\_ dB (NLT 25 dB)

Input a 100 uV standard audio test signal into the unit. Disable the compressor by grounding pin 10 of J97A1, J96A1. Monitor the 4 ohm audio output while removing modulation.

## 5.3.4.D. Audio Frequency Response:

5.3.4.D.1 Comm      350 Hz      \_\_\_\_\_ dB  
                        1 kHz      \_\_\_\_\_ dB  
                        2.5 kHz    \_\_\_\_\_ dB

Input a 100 uV standard audio test signal into the unit.

5.3.4.D.2 Aux1      350 Hz      \_\_\_\_\_ dB  
                        1 kHz      \_\_\_\_\_ dB  
                        2.5 kHz    \_\_\_\_\_ dB

Insert a 1 kHz 4.47 V (40 mW @ 500 ohms) audio signal into the Aux1 input.

## 5.3.4.E. Audio Distortion: (Optional test requiring distortion analyzer)

5.3.4.E.1 Comm      350 Hz      \_\_\_\_\_ % (NMT 15%)  
                        1 kHz      \_\_\_\_\_ % (NMT 15%)  
                        2.5 kHz    \_\_\_\_\_ % (NMT 15%)

5.3.4.E.2 Aux1      350 Hz      \_\_\_\_\_ % (NMT 15%)  
                        1 kHz      \_\_\_\_\_ % (NMT 15%)  
                        2.5 kHz    \_\_\_\_\_ % (NMT 15%)

|  |  |  |  |                                     |
|--|--|--|--|-------------------------------------|
| 1. Autorité de l'aviation/ Pays qui approuve le bon de sortie  | 2.   | 3. Numéro de suivi du formulaire   |  |                                     |
| <b>TRANSPORTS<br/>CANADA</b>   | <b>BON DE SORTIE AUTORISÉÉ<br/>FORM ONE</b>  |  |  |                                     |
| 4. Nom et adresse de l'organisme agréé   | <b>École nationale d'aérotechnique</b><br>5555 Place de la Savane, St-Hubert, QC, Canada, J3Y 8Y9<br>Tél. (1)-450-678-3561 |  |  | 5. Bon de travail/ Contrat/ Facture |
| 6. Article   | 7. Description   | 8. Numéro de pièce   | 9. Quantité  | 10. Numéro de série/ de lot         |
| 11. Situation/ Travail   |  |  |  |                                     |
| 12. Remarques  |  |  |  |                                     |
| 13a. Le présent bon de sortie certifie que les articles indiqués ci-dessus ont été construits conformément à :   |  | 14a.   |  |                                     |
| <input type="checkbox"/> des données de conception approuvées et qu'ils peuvent être utilisés en toute sécurité.<br><br><input type="checkbox"/> des données de conception non approuvées indiquées à la case 12.          |  | <input type="checkbox"/> RAC 571.10 (certification après maintenance).<br><br><input type="checkbox"/> Autre réglementation précisée à la case 12. |  |                                     |
| Le présent bon certifie que, à moins d'indication contraire apparaissant à la case 12 le travail indiqué à la case 11 et décrit à la case 12 a été effectué conformément au <i>Règlement de l'aviation canadien</i> (RAC). |  |  |  |                                     |
| 13b. Signature   | 13c. Numéro de l'organisme agréé   | 14b. Signature   | 14c. Numéro l'organisme agréé<br><br><b>OMA NNN/AA</b> |                                     |
| 13d. Nom   | 13e. Date (jj-mm-aaaa)   | 14d. Nom   | 14e. Date (jj-mm-aaaa)                                 |                                     |

## **RESPONSABILITÉS DU MONTEUR**

Le présent bon de sortie ne constitue pas une autorisation de montage.

Le monteur qui travaille conformément à la réglementation d'un pays autre que celui spécifié à la case 1 doit s'assurer que la réglementation en question reconnaît la certification du pays ainsi spécifié.

Les déclarations des cases 13a et 14a ne constituent pas une certification de montage. Dans tous les cas, le dossier technique de l'aéronef doit inclure une certification de montage délivrée conformément à la réglementation nationale qui s'applique, avant que l'aéronef puisse voler.