Filser Electronic GmbH
Gewerbestraße 2
86875 Waal

ATR 57 COM

VHF Transceiver

Installation
and
User manual

Ver. 1.5, Date: May 01

Contents

1 General Information

1.1 Introduction

This ATR 57 Handbook describes the VHF Communication transceiver with following sections.

1. General Information
2. Installation
3. Operating Instructions

1.2 Purpose of this equipment

The Filser ATR 57 is a VHF Communication transceiver covering the aeronautical radio frequency range from 118,00MHz to 136,975 MHz in 25 KHz increments with 720 channels.
The ATR 57 was designed that all operational requirements encountered in VFR flying can be met. The Communication transceiver is designed as a single block unit with 57mm diameter for instrument panel or consul mounting. It is fastened by four (4mm) screws. All controls and indicating displays are located on the front panel. The rear panel of the unit locates the connector (sub D9) for connecting the aircraft wiring. The VHF Antenna is connected to the BNC socket.
The volume and squelch level can be selected easily.
The Unit can store 9 VHF frequencies in the memory for faster access in operation. The Filser ATR 57 also contains an intercom facility controlled by a special feature VOX (Voice Operated X-mission). This is a voice level controlled switch for the headset to turn off the background while no speaking. For good VOX performance identical Microphones should be used and a correct input level must be set.
Two Microphones and Two Headphones and an additional speaker can be connected to the unit. For Intercom operation with a bad Microphone selection an optional Intercom switch can be installed to turn off the background manually.

1.3 Specification

Frequency range:	118,000 .... 136,975 MHz
Channels:	760
Channel spacing:	25 kHz
Modulation:	AM DSB, 70% modulation
Operation modus:	alternate talking on one frequency
RF-output power:	> 1 Watt
NF-output power:	1 Watt
Voltage:	10,5 V up to 16 V
Current consumption:	receiving mode:100mA and transmitting mode: 1A
Microphone level:	15 mV up to 1V (70% modulation)
Dimensions:	57 x 57 x 160 mm
Weight:	500 g
Certification:	Reg. TP 321 ZV 034

1.4 Manufacturer

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2 Installation

2.1 General

Installation of the ATR 57 VHF Communication transceiver depends on the type of aircraft and equipment involved. The instruction given in this section are therefor only general applicable.

2.2 Pre-installation check

Prior to fitting the new VHF Communication transceiver in the aircraft the equipment must be checked according to the following procedure to establish whether they have been damaged in transit.

Visual Inspection:

- scratches, corrosion, damaged paintwork
- scratches on the nameplate
- bend of or broken-off pins, mechanical damage to rotory switches.

2.3 Mechanical Panel installation

The ATR 57 is designed for instrument panel or control panel mounting in the aircraft. The cut-out diameter for placing the ATR 57 in the panel is standard 57mm. The Unit is fastened by four (4mm) screws in the panel or consul.

Avoid mounting the unit near hot places. The unit will not need any external cooling device like a fan.

2.4 Installation wiring

The cable harness should be as short as possible. Avoid that cables run near strong RF noise sources like the ignition coil, generator or battery charger. This can cause a additional noise in the speaker. The ATR57 has to be protected by an external slow fuse with 2 Ampere.

The following installation wiring illustrate the wiring for single and double microphone installation with and without Intercom and Headphones.

Your service company can provide all needed cables, the connectors are delivered with your ATR 57.

2.5 Microphone connection

The ATR57 has two microphone inputs :Mic 1 and Mic 2.

- Mic 1 input for Electret microphone or dynamic microphone with preamplifier (50 mV to 2Vpp) adjustable with the Mic Level control. This input provides a bias voltage of 9V at 330 Ohm. For dynamic microphone a switch (Mic Setting) located at the top side of the unit (see diagram below) is used to select the input level for 5mV to 10mV without the bias .
  Factory setting is Electret.

- Mic 2 input is for Electret microphone only (50 mV to 2Vpp) adjustable with the Mic Level control.

The Mic Level control is located at the top of the unit.
If two Electret microphone are used they must have equal output levels for proper intercom operation, also the Mic Level controls for Mic 1 and 2 are simultaneous.
Factory setting is to standard Electret (ECM) microphone (50mV to 2V).

2.5.1 Microphone level check

- To get a reference for a correct MIC-level make sure that the VOX-value is at 16. With a headset the level can be checked, by speaking at the normal distance to the Mic and increasing the Mic Level until the VOX turns on and off at a satisfying level.

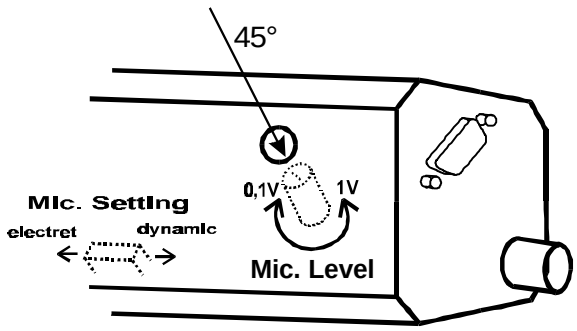

Diagram for Mic Level and Mic Switch

After installation in the aircraft is completed, a radio check should be made and if necessary the Mic Level must be readjusted.

2.6 Intercom mode

With Intercom two crew members can talk to each other over the ATR 57 system. This of communication takes place only internally, there is no transmission.
A special feature is the **VOX** (**V**oice **O**perated Transmission**(x)**). The Intercom is opened only if one of the crew members is speaking. This avoids having all the time surrounding noise on the headphone. The opening level for the VOX is adjusted as described in para. 3.4.(VOX level control for intercom).
Only if the transmission key (PTT) is pressed, the radio will change to the transmission mode. For best results microphones which produce almost the same output level should be used. The use of very different microphones can lead to the fact, that the member with the lower output level can not open the VOX.
The best solution are identical amplified electret-microphones.
The optional Intercom for operation without VOX switch must be mounted externally. If it is not used the corresponding wire must be connected (switched) to GND.

2.7 Antenna Installation

The ATR 57 works well with a normal 50Ω-COM-antenna. Polarisation must be vertical. Using a broad band COM-antenna provides a high efficiency over the entire COM band. The antenna should installed according to the manufacturers advises.

Some important general advises for antenna installation are listed below:

- Unsymmetrical antennas (λ/4-Antenna) should be mounted on plane metal surfaces or metal plates of at least 60 x 60cm or more.
- The antenna should have the maximal possible distance to motor and propeller. This avoids getting modulation on your signal.
- The COM-antenna should have the maximal possible distance to the NAV-antenna in order to avoid interference.

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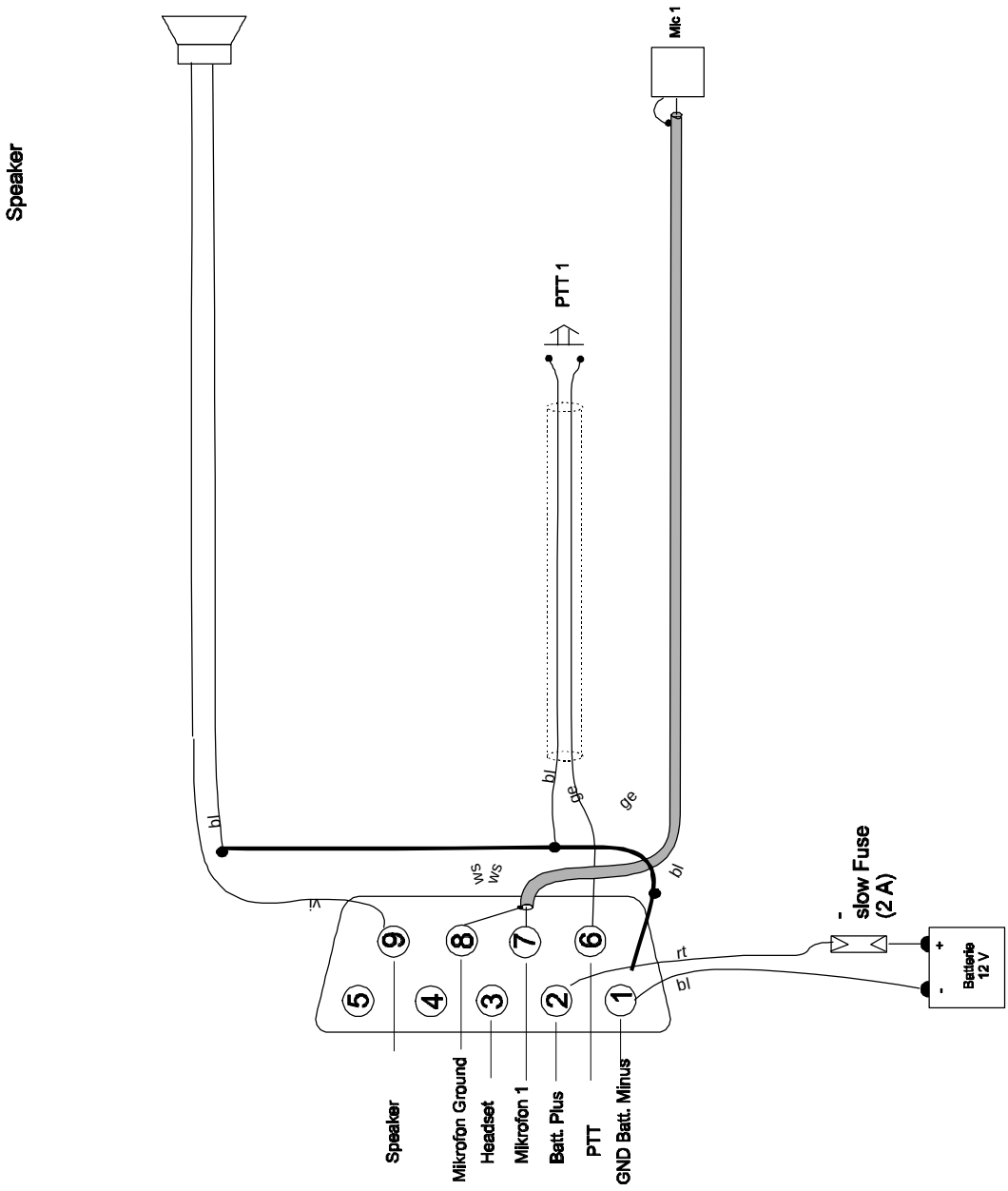

Installation wiring diagram for glider installation

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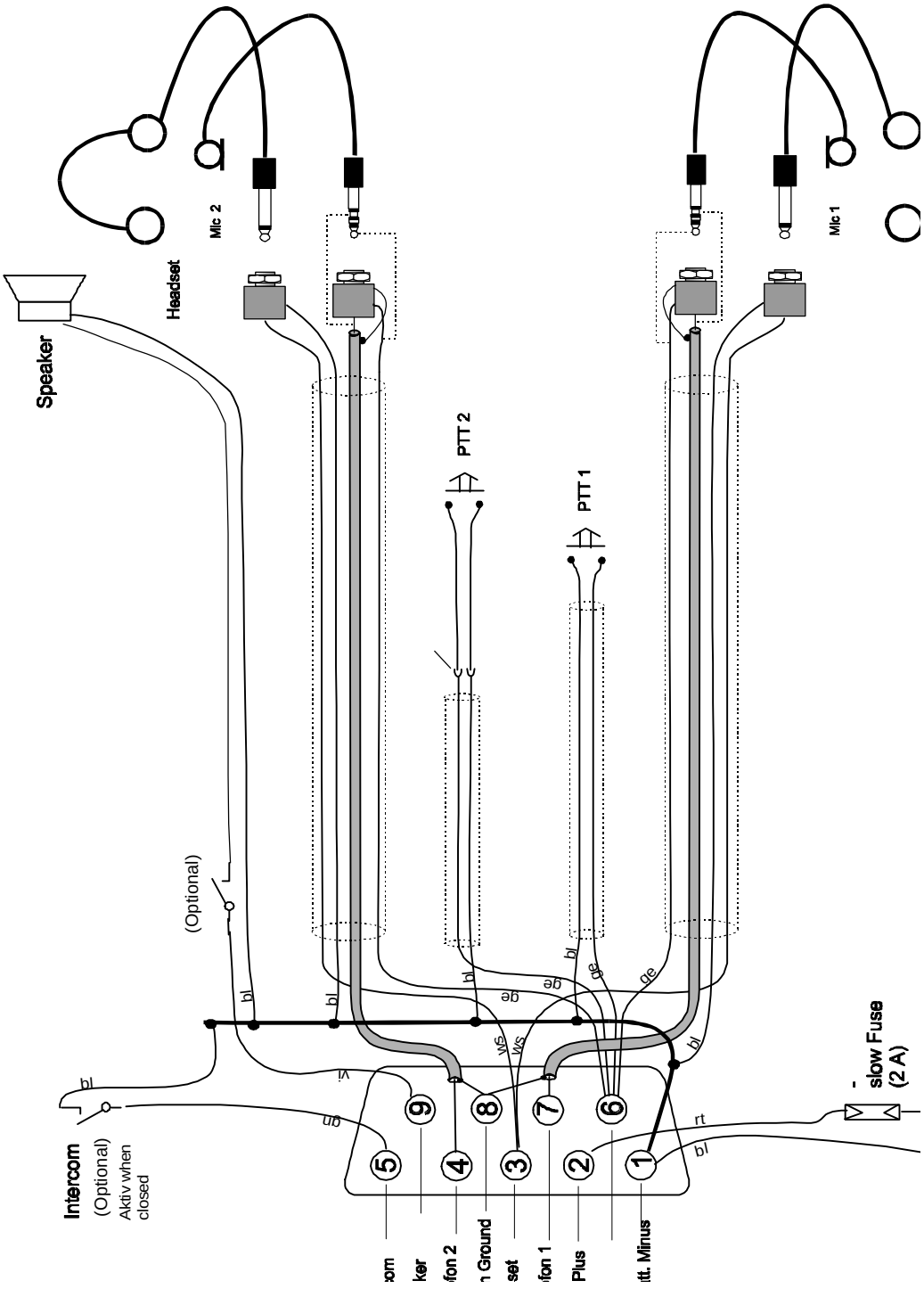


Installation wiring diagram for double installation with intercom

3 Operation Instructions

3.1 Turn on

The „ON-OFF“-switch (2) is mounted on the left side of the unit. The radio is active, when the switch position is in „**ON**“ (upper position).

3.2 Volume control

Push the **VOL-SQ** button once to get into the Volume mode (Display shows **VOL: 01** to 33). By turning the big knob (4) the Volume can be changed to the desired volume. The unit will leave the Volume mode, if a another frequency is selected by **MEM** or if the **VOL-SQ** push-button is pressed again. The selected level is active until the ATR 57 is switched off. To use this level as switch on default, push the **STORE** button (6) while the device is in the Volume mode. For confirmation the ATR 57 shows „**ST**“ in its display.

3.3 Squelch level control

Push the **VOL-SQ** button twice to get into the Squelch mode (Display shows **SQ: 01** to 16). By turning the big knob (4) the Squelch setting can be changed to the desired level. The unit will leave the Squelch mode, if a another frequency is selected by **MEM** or if the **VOL-SQ** push-button is pressed again. The selected level is active until the ATR 57 is switched off. To use this level as switch on default, push the **STORE** button (6) while the device is in the Squelch mode. For confirmation the ATR 57 shows „**ST**“ in its display.
The normal Squelch setting is about 3. With higher settings weak signals may not let be heard. The Squelch setting has no influence in the intercom mode.

3.4 VOX level control for Intercom

Push the **VOL-SQ** button three times to get into the Intercom mode (Display shows **VOX: 01** to 32). By turning the big knob (4) the Intercom setting can be changed to the desired level. The unit will leave the Intercom mode, if a another frequency is selected by **MEM** or if the **VOL-SQ** push-button is pressed again. The selected level is active until the ATR 57 is switched off. To use this level as switch on default, push the **STORE** button (6) while the device is in the Intercom mode. For confirmation the ATR 57 shows „**ST**“ in its display.
The higher the selected value is, the louder you have to talk to open the Intercom path.

Note: The Volume control described in 3.2 adjusts only the received signal and not the Intercom level.

3.5 Memory selector

The memory selector **MEM** (7) is located in the upper middle of the unit. It is used for selecting previous stored frequencies or for saving a frequency on one of the 9 memories. Between memory **M1** and **M9** (the white line on the memory selector shows downward) you will find the **SET** operation mode for selecting manually a frequency in the standby list (lower line) .

3.6 Selecting and storing a frequency

Turn the memory selector in the **SET** position between memory MEM1 and MEM9 (the white line on the memory selector shows downward). The upper line of the display shows the actual active frequency, in the second line the changeable frequency is displayed **>.**

Setting a new Frequency or changing an existing Frequency
The standby Frequency (lower column) can be changed in the following way:

- With the ↔ button (3) select MHz- or kHz . A small arrow > on the display (9) shows to MHz- or kHz that can be changed by the big frequency knob (4).

- With the ↑↓ button on the lower right side (5) this new frequency can be activated. Now it is displayed on the upper line, the old active frequency is deactivated and displayed in the second line.

Storing a Frequency
Turn the memory selector **MEM** (7) to **M** 1... 9 where the new frequency is to be stored and then press the **STORE** button (6).

3.7 Low-battery

If the battery voltage falls below 10,5V a „**B**“ will be displayed in upper left corner. A save operation of the unit can not be guaranteed.

3.8 Automatic frequency control

If the actual used frequency has an intolerable frequency drift a "-" (12) will appear in the upper right corner of the display. Transmitter than can not be activated.

In this case the ATR 57 is not working properly and must be returned to the manufacturer.
Notice: Sometimes the "-" may be displayed, but it disappears when the frequency is changed or the device is switched off and on. This can be due to strong noise from outside the ATR 57. This is no malfunction of the ATR 57

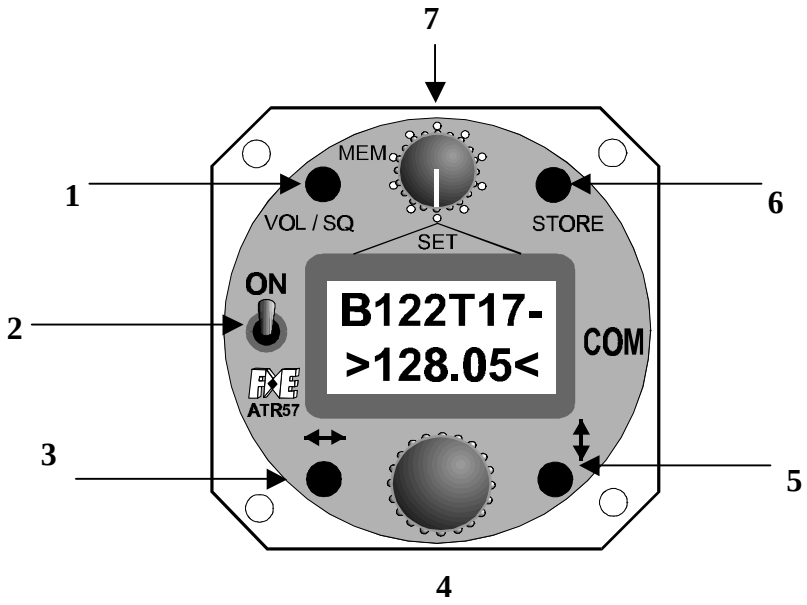
3.9 Transmitting mode

By using the transmitting key (PTT), the ATR 57 will change to the transmit mode and transmit on the frequency shown on the upper position of the display. As long as the transmission takes place a "**T**" will be shown instead of the decimal point between the MHz- and kHz-value of the actual frequency (upper line), to control the proper function of the device. By checking the Sidetone in the headphone you have a further control for a proper transmission.

3.10 Receiving indication

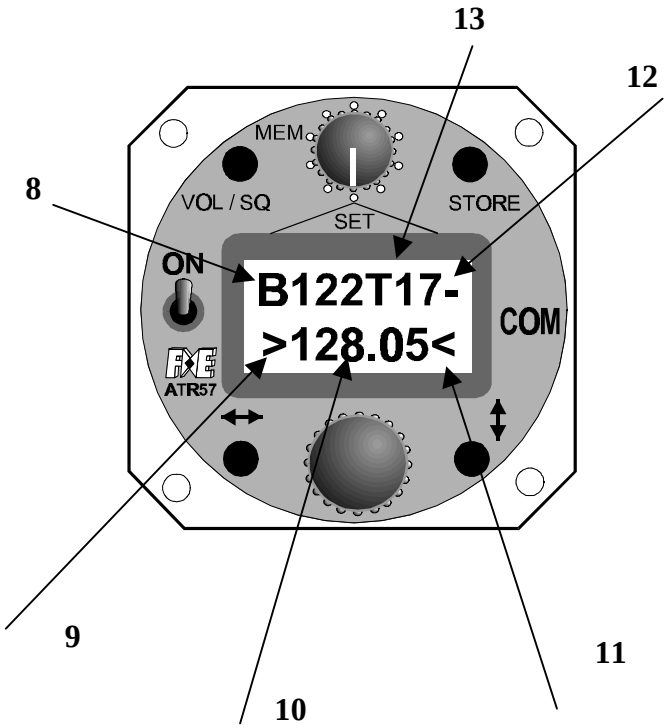
As long as a receiving signal takes place or the squelch is open a "**R**" will be shown instead of the decimal point between the MHz- and kHz-value of the actual frequency (upper line).

ATR 57 Operating Controls



1. Volume / Squelch push-button
2. ON / OFF switch
3. MHz / kHz push-button
4. Tuningknob for Volume, Squelch, VOX and standby frequency
5. Change selected frequency to active frequency
6. **Store**-button
7. **MEM** Select stored frequency

ATR 57 Display



8. "B" Low-Battery display, shown when voltage is < 10,5V
9. "><" changing MHz or kHz range
10. MHz-range of standby frequency
11. kHz-range of standby frequency
12. "-" shown at lost of transmitting or receiving frequency (active frequency)
13. "**T**" shown during transmitting mode and
"**R**" shown during receiving mode (active frequency)

EuroCAE

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EU-Kennummer 0680

beliehen nach der Beleihungs- und Akkreditierungsverordnung vom Dezember 10, 1997
als Benannte Stelle der Bundesrepublik Deutschland, vertreten durch die
recognised in accordance with the Recognition and Accreditation Ordinance of 10 December 1997
as Notified Body for the Federal Republic of Germany, represented by

Regulierungsbehörde für
Telekommunikation und Post

DEUTSCHE BAUMUSTERPRÜFBESCHEINIGUNG
GERMAN TYPE-EXAMINATION CERTIFICATE

Registriernummer: Registration No.:	**F 000 129 K**
Bescheinigungsinhaber: Certificate Holder:	**Filser Electronic GmbH** **Gewerbestrasse 2** **D-86875 Waal**
Produktbezeichnung: Product Designation:	**UKW-Sprechfunkanlage des Beweglichen Flugfunks (Luftfunkstelle)** Airborne VHF Receiver - Transmitter
Produktbeschreibung: Product Description:	**ATR 57 COM**
Produkthersteller: Product Manufacturer:	**siehe Bescheinigungsinhaber** see Certificate Holder
Vorschrift: Specification:	**Reg TP 321 ZV 034 : Juli 1998** EUROCAE ED-23B & EUROCAE ED-14C
Prüfergebnis: Examination Result:	**Das geprüfte Baumuster ist konform zu der genannten Prüfvorschrift.** **The examined type is in conformity with the above-mentioned test specification.**

Diese Bescheinigung ist erstellt in Übereinstimmung mit der Telekommunikationszulassungsverordnung vom 20. August 1997 und gilt nur in Verbindung mit den nachfolgenden 2 Anlagen.
This certificate is issued in accordance with the Telecommunications Type Approval Ordinance of August 20th, 1997 and is only valid in conjunction with the following 2 annexes.

Essen, 16. Dezember 1998
Ort, Ausstellungsdatum
Place, Date of Issue

Volker Propach
Unterzeichnet von/Signed by Volker Propach
Benannte Stelle/ Notified Body

CETECOM GmbH • Im Teelbruch 122 D-45219 Essen, Germany • Tel.: + 49 (0) 2054 / 9519-11 • Fax: + 49 (0) 2054 / 9519-88

EC-Type Approval Certificate

GRAND-DUCHE DE LUXEMBOURG

SERVICE DE L'ENERGIE DE L'ETAT

SERVICE DE L'ENERGIE DE L'ETAT

Notified body
Organisme notifié - Notifizierte Stelle

Identification Number
No d'identification - Identifikationsnummer :

0499

EC-Type Approval Certificate

Attestation "CE de Type" / EG-Baumusterbescheinigung

according to the
conformément à - gemäss

Electromagnetic compatibility directive

Directive relative à la compatibilité électromagnétique / Richtlinie über die elektromagnetische Verträglichkeit

(89/336/EEC)

Certificate Holder:
Titulaire de l'attestation - Inhaber der Bescheinigung:

FILSER Electronic GmbH

Gewerbestraße 2
D 86875 WAAL

Manufacturer:
Constructeur - Hersteller:

FILSER Electronic GmbH

Gewerbestraße 2
D 86875 WAAL

Product Designation:
Désign. du produit - Produktbez.:

TRANSMITTER/RECEIVER
Emetteur/Récepteur - Funkgerät

Productidentification:
Identification du produit
Produktindentifikation:

Airborne VHF Transceiver
ATR 57 COM

This EC-Type Approval Certificate has been granted according to article 10.5 of the 89/336/EEC Directive concerning electromagnetic compatibility and its amendments. No compliance according to other EC Directives on electromagnetic compatibility and their requirements is given. Only the tested sample and the corresponding test report are covered by this EC-Type Approval Certificate, no authorization on product marking by a safety mark is given.

Registrated Certificate No: 9942497-01
No du Certificat - Zertifikat Nr.:

Technical Test Report: 50613-90012
Rapport d'essais - Prüfbericht:

Luxembourg, 16.04.99

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Jean-Paul HOFFMANN
Commissaire du Gouvernement

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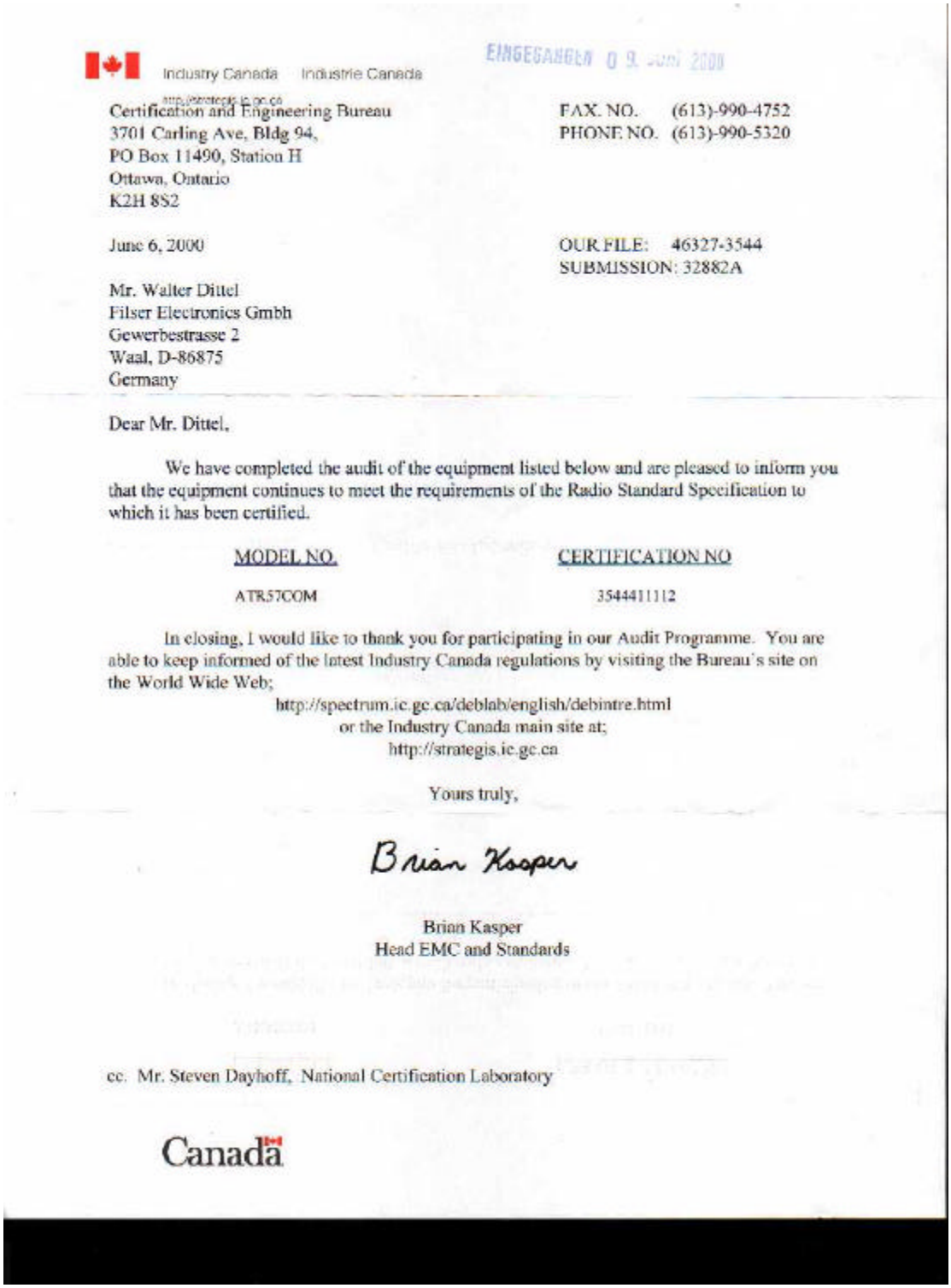

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K2H 8S2

FAX. NO. (613)-990-4752
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June 6, 2000

OUR FILE: 46327-3544
SUBMISSION: 32882A

Mr. Walter Dittel
Filser Electronics Gmbh
Gewerbestrasse 2
Waal, D-86875
Germany

Dear Mr. Dittel,

We have completed the audit of the equipment listed below and are pleased to inform you that the equipment continues to meet the requirements of the Radio Standard Specification to which it has been certified.

MODEL NO.	CERTIFICATION NO
ATR57COM	3544411112

In closing, I would like to thank you for participating in our Audit Programme. You are able to keep informed of the latest Industry Canada regulations by visiting the Bureau's site on the World Wide Web;

http://spectrum.ic.gc.ca/deblab/english/debintre.html
or the Industry Canada main site at;
http://strategis.ic.gc.ca

Yours truly,

Brian Kasper

Brian Kasper
Head EMC and Standards

cc. Mr. Steven Dayhoff, National Certification Laboratory

Canada