

**MODIFICATION DESCRIPTION**

# ATR42/ATR72 Cargo Combi Re-Configuration



Issue 1  
25 September 2017

Infinion Certification Engineering Inc.  
Box 20040 RPO Kensington  
Medicine Hat, Alberta T1A 8M4  
P. 403-504-0400  
infinion.ca

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**INTRODUCTION**

**BACKGROUND**

Infinion has designed a Cargo/Passenger Combi conversion for ATR42 and ATR72 aircraft. The installation is approved under Transport Canada STC SA14-26.


 Transport Canada / Transports Canada  
 Department of Transport  
**Supplemental Type Certificate**

<p>This approval is issued to:          Infinion Certification Engineering Inc.          Box 20040 RPO Kensington          Medicine Hat, Alberta          Canada T1A 8M4</p>	<p><i>Number:</i> SA14-26  <i>Issue No.:</i> 1  <i>Approval Date:</i> May 02, 2014  <i>Issue Date:</i> May 02, 2014</p>
<p><b>Responsible Office:</b> Prairie and Northern  <b>Aircraft/Engine Type or Model:</b> ATR-GIE ATR 42-300, ATR 42-320, ATR 72-102, ATR 72-202  <b>Canadian Type Certificate or Equivalent:</b> A-159 (ATR 42)          A-171 (ATR 72)  <b>Description of Type Design Change:</b> Cargo Combi Conversion</p>	

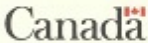
**Installation/Operating Data, Required Equipment and Limitations:**  
 Installation of the Cargo Combi Conversion is to be done in accordance with the Transport Canada Civil Aviation (TCCA) approved Infinion Installation data as listed in the attached Eligibility table.  
 Operation is to be in accordance with TCCA approved Infinion Flight Manual Supplement as noted in the attached Eligibility table.  
 Maintain in accordance with Infinion Maintenance Manual Supplement as noted in the attached Eligibility table. The airworthiness limitations referenced therein are mandatory.  
**Basis of Certification for Affected Areas:** FAR 25 including amendments 25-1 through 25-56 plus FAR 25.772 at Amdt 25-106, AWM 525.795 effective December 1, 2004 and a determination of Equivalent Level of Safety in lieu of direct compliance with FAR 25.807 for the ATR 72, as recorded in Issue Paper G3-OS-1.

— See Continuation Sheet —

**Conditions:** This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.



  
 Scott W. Wales  
 For Minister of Transport





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## **ELIGIBLE AIRCRAFT**

The existing STC includes the following models:

ATR42-300

ATR42-320

ATR72-102

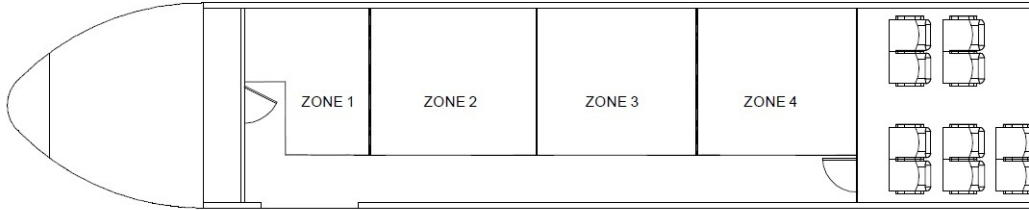
ATR72-202

Infion has examined adding additional aircraft models, and has not identified any immediate concerns. For questions about specific models please contact Infion.

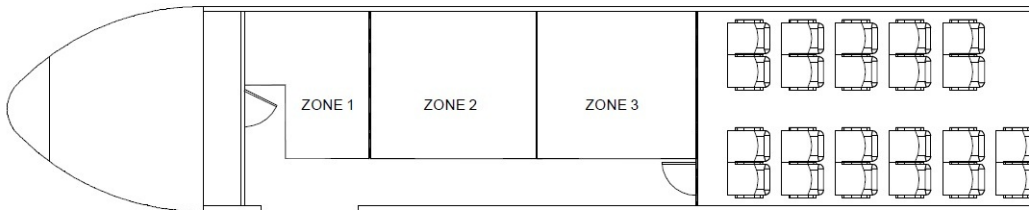
## **DESCRIPTION**

The features of this conversion are as follows:

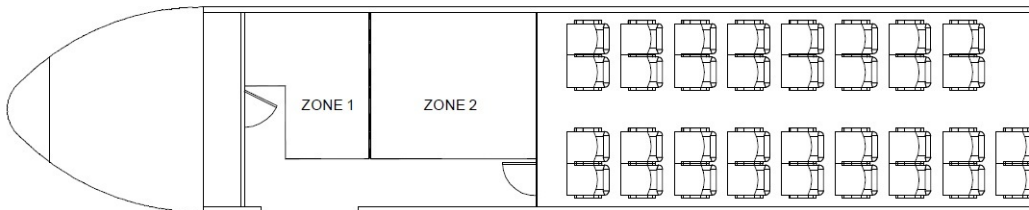
- a. For combi configurations, the cargo compartment is Class C.
- b. For passenger compartments, the existing interior configuration is maintained. Airline colours, features, convenience are not affected.
- c. Ease of converting from one configuration to another.
- d. Cargo is bulk loaded, and restrained with cargo nets. Optional roller floor system for pallet loading is also available.
- e. Side aisle permits flight crew access to the passenger area and entry door.



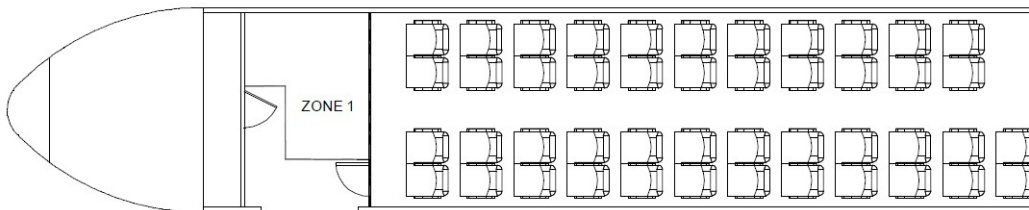
10 PAX AT 30 IN PITCH



22 PAX AT 30 IN PITCH

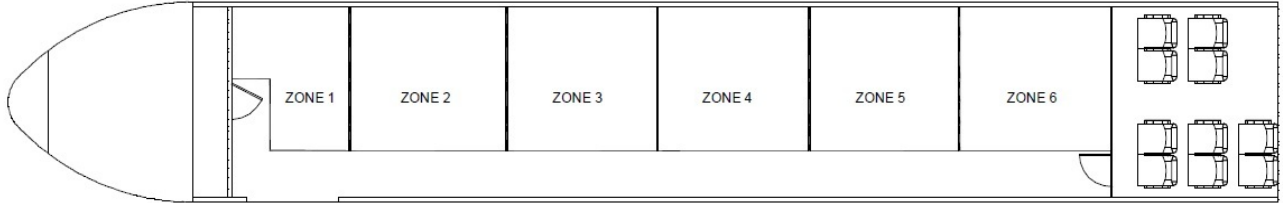


34 PAX AT 30 IN PITCH

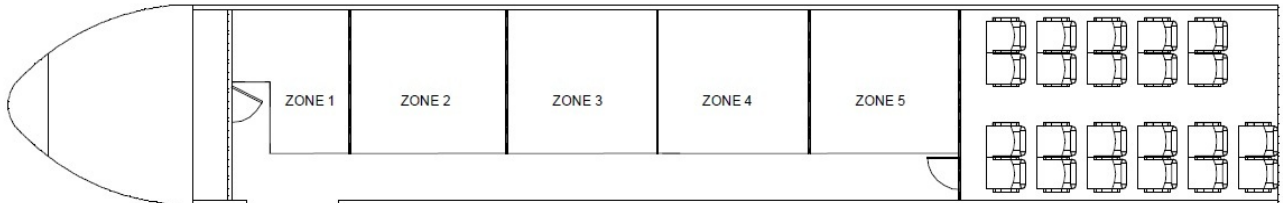


46 PAX AT 30 IN PITCH

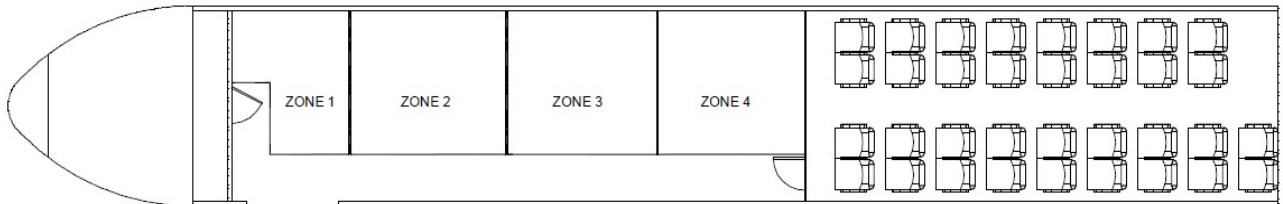
ATR42 Layout Options



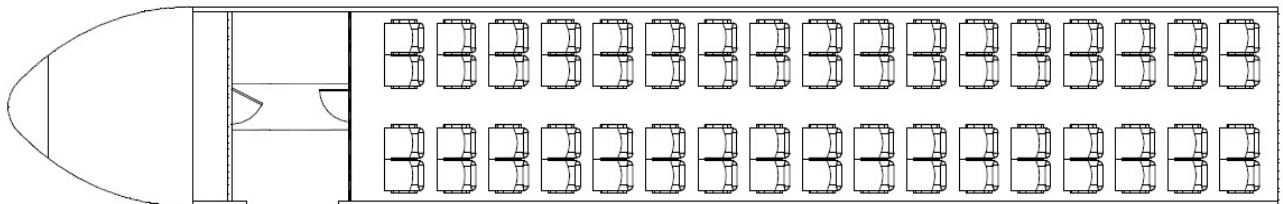
10 PAX AT 30 IN PITCH



22 PAX AT 30 IN PITCH



34 PAX AT 30 IN PITCH



68 PAX AT 31 IN PITCH

ATR72 Layout Options

## STANDARD CONFIGURATION

### CARGO COMPARTMENT LINER

A Class C cargo liner is added to the cargo areas, including the forward area presently certified as a Class B baggage compartment. The existing passenger compartment sidewall panels are left in place and new panels are installed on an independent framework. This prevents damage to the existing panels during conversion and reduces conversion time. The liner incorporates pressure equalization (breather) valves, as well as blowout panels.

A new moveable bulkhead is installed. The bulkhead includes an access door to permit crew access from the passenger compartment to the cockpit. A side aisle is maintained in the cargo area.

Forward panels are installed on the cockpit bulkhead. This provides the cargo compartment liner and a means of installing and sealing the new cockpit security door.



Cargo Liner and Floor Panels  
(roller floor is optional)

### CARGO FLOOR

The standard passenger flooring is not satisfactory for cargo operation, as the floor boards are not designed for the required loads nor do they have adequate durability for cargo operations. A higher strength floor board material is installed in the cargo area. The floor boards also form part of the cargo liner and are sealed during installation.

The floor boards in the passenger area are often damaged upon receipt of the aircraft. The passenger area floor boards may also be replaced with the more durable floor board design, at the discretion of the operator.

### **CARGO RESTRAINT**

Cargo nets are used for restraint of cargo. Nets are installed at each of the segmented compartments. The cargo nets will tie into vertical support poles that carry all of the forward ultimate cargo loads.



Cargo Nets

### **PASSENGER AMENITIES**



Passenger Cabin

The passenger arrangement complies with all of the applicable requirements in each of the approved configurations. The existing electric floor path lighting system is replaced with a photo-luminescent floor path lighting system that applies to all four configurations.

The standard passenger layouts are based on the existing ATR seating configuration. These include 10 passenger, 22 passenger, and 34 passenger options, plus the original 42/46 or 68/72 passenger configurations, based on the installed bulkhead option and the original passenger seating arrangement.

### SMOKE/FIRE DETECTION SYSTEM

A smoke detection system is installed in the cargo compartment. The system is able to detect a small fire within 1 minute. This system is configured so that it will operate in each of the four configurations (10/22/34 and 46 or 72 passengers), and will give a visual and aural indication to the pilots.



Smoke Detector

### FIRE SUPPRESSION SYSTEM

A Halon fire suppression system is installed. The system operates automatically and is rated for 1 hour (60 Minute) fire suppression.



Fire Suppression Control Head



Halon Bottles and CEU

### VENTILATION

The cargo compartment is not ventilated. The existing passenger ventilation system is maintained. Decompression venting is installed to maintain the existing aircraft decompression vent areas.



## **CARGO LIGHTING SYSTEM**

Lighting is installed in the cargo area. The cargo lights are LED lights installed near the smoke detectors and provide acceptable lighting levels for loading and unloading cargo, as well as for passage through the cargo area during flight.

An optional battery powered lighting system is available for operation in areas that do not have ground power readily accessible.



LED Lighting

## **DOCUMENTATION**

A full documentation package is provided, including a Flight Manual Supplement, Cargo Loading Supplement, Maintenance Manual Supplement, Instructions for Continued Airworthiness, and Component Maintenance Manuals, as applicable.

## **DESIGN AND ENGINEERING SERVICES**

During the course of installation changes or corrections to the installation and associated data may be required. Engineering support to address routine issues associated with the installation, including drawing change notices, drawing updates, and certification of any required changes, is included with the authorization. Customer requested design changes are not included.

## **KITS AND INSTALLATION SERVICES**

Infion does not provide installation services or kits, with the exception of the nets and some of the smaller items. We can provide liaison services with one of our preferred install shops.

## CONFIGURATION OPTIONS

### OVERVIEW

The following options may be added, subject to additional costs, Some options may also require certification review, and have a potential to impact the timeline.

### 19 PASSENGER CONFIGURATION

A 19 Passenger option may be developed based on the existing 22 passenger configuration. Additional seating layouts may be approved by removing or re-arranging the seating configuration. Each layout will be evaluated and approved separately to ensure it complies with all certification requirements.

### ROLLER FLOOR



Roller Floor

A roller floor has been developed for ease of cargo handling. The roller floor system uses standard roller components for ease of maintenance. Existing cargo restraint provisions are not affected. This option is approved under the existing STC.



Cargo Light Battery

### BATTERY POWERED CARGO LIGHTS

Battery Powered LED Cargo Lights are available. These are used in areas where ground power is not readily accessible. Light battery charges off of the non-essential bus during flight.



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### **PILOT OPERABLE CARGO DOOR**

The forward cargo door can be converted for operation from the inside to facilitate pilot egress.

### **ELIMINATE SIDE AISLE**

The side aisle may be eliminated in order to increase available cargo volume (cargo weight is not affected). This prevents the pilots from accessing the passenger cabin during flight. Pilot operable cargo door may be required in order to certify this option.

### **ALL CARGO OPTION**

The combi interior can be extended aft to convert the entire aircraft for cargo use. Note that this is intended for temporary use as a quick change configuration. Additional work is required to complete the design details for this option.

### **ADDITIONAL CUSTOMER OPTIONS**

Additional customer requested options will be considered on a case by case basis. Incorporation of options will be subject to availability of personnel to design and certify the option, and to the suitability of the modification for certification.