



TRANSPONDER WITH IVAC

1. Introduction

In his area of control, an active controller is responsible to assign a transponder code to all aircraft. It is the responsibility of the pilot in command to tune this transponder code in his aircraft.

To reduce pilot and controller workload and the need for controller/pilot communication, the number of code changes required of the pilot should be kept to the minimum.

2. Transponder code

As the system of discrete transponder codes is very complex in real aviation, there are no IVAO global rules to assign specific series of transponder codes to a specific activity or type of flight. Outside of specific cases given in this documentation, the transponder code assignment is free.

Be aware, as ATC, you cannot assign a particular code to an aircraft outside your airspace.

Some countries have their own transponder code allocation. Contact the ATC Operations Coordinator of the related division or ATC Operations Director.

Except for aircraft in a state of emergency, or during radio communication failure, the transferring unit shall assign transponder code A2000 to a controlled flight prior to transfer of communications except before a transfer to an accepting ATC unit.



Figure showing aircraft squawking 2000 in non-controlled area after ATC transfer to Unicom.

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2.1. Transponder 7700

The pilot of an aircraft in a state of emergency shall set the transponder to code 7700 unless ATC has previously directed the pilot to operate the transponder on a specified code.

An ATC can request a pilot to squawk 7700 if he declares an **emergency or distress** situation (**MAYDAY**).



Radar capture with aircraft using active code 7700

After the aircraft has landed, an air traffic controller should ask the pilot to set a normal code when the emergency is terminated. As a pilot, set the transponder code to 2000 or ask a new code to the air traffic controller after the emergency is terminated.

2.2. Transponder 7600

The pilot of an aircraft losing two-way communication shall set the transponder to code 7600.

On the IVAO network, if a pilot cannot initiate two-way communication by voice with the air traffic controller, pilot and ATC must try to communicate by text as far as possible and do not use squawk 7600.



A controller, who notices a communication failure code, will determine the extent of the failure by instructing SQUAWK IDENT or to change the code. With that operation, if it is determined that the aircraft receiver is functioning, further control of the aircraft will be continued using code changes or IDENT transmission to acknowledge receipt of clearances.

This code shall not be used to ignore ATC clearance and contact.

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2.3. Transponder 7500

In real aviation, if there is unlawful interference with an aircraft in flight, the pilot-in-command shall attempt to set the transponder to code 7500 in order to indicate the situation.

The use of this code is strictly prohibited on the IVAO network. (R&R 6.4.1)

“Special operation including simulation of terrorism and act of wars are prohibited.

Although armed conflicts do exist in the real world, we do not allow the simulation of any form of aggression or violence on the IVAO network.”



(This image was created with special authorization from a supervisor in order to make this documentation).

As an air traffic controller, if you observe the use of 7500 code within or outside your airspace, you should advise the pilot to change his transponder code to a new code immediately as the use of this code is forbidden in IVAO.

If the pilot continues to use this code, please call a supervisor using the .wallop command.

2.3.1. Non-controlled VFR code

Depending on local regulations, non-controlled VFR codes can change.

The most frequently codes used are:

- **1200** : USA and Canada standard squawk code
- **7000** : Europe VFR standard squawk code
- **2000** : ICAO standard squawk code



Other default codes are dependent on whether local regulations have made them available (ex 1400, 3000).

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1.1. Transponder status with IvAc

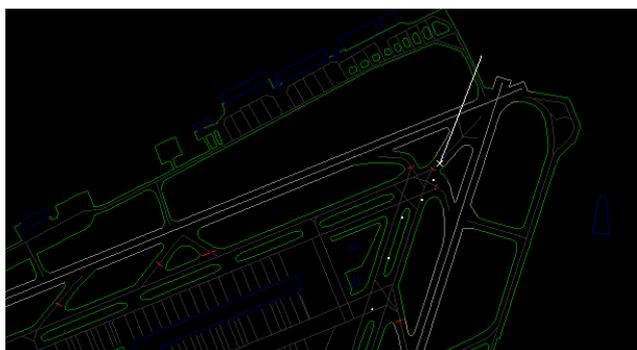
It is the responsibility of the active controller to check that a pilot correctly uses the STDBY/TX position of his transponder.

All pilots must:

- Set transponder to **STDBY** position before connecting to the IVAO network
- Set transponder to **STDBY** position on apron and during taxiing
- Set transponder to **TX** position when cleared entering on runway for departure, and at the latest before take-off.
- Keep transponder to **TX** position while flying
- Set transponder to **STDBY** position after vacating the landing runway

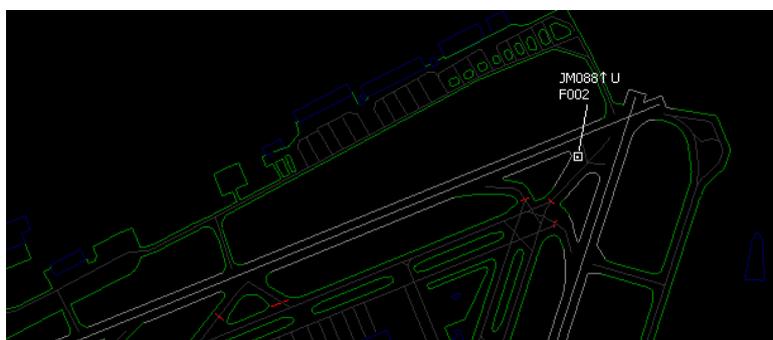
1.1.1. IvAc representation

The figure below shows an aircraft taxiing in **STBY** mode on the radar screen (no altitude is shown):



(Aircraft call sign may be displayed, depending on the IvAc settings)

The figure below shows an aircraft in **TX** mode (known as ALT / ALTICODER mode) on the radar screen (altitude is shown):



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There are only two representations of the transponder mode:

- **Mode A** transponder with no pressure altitude information



This representation is also valid for **N**, **X** and **I** modes. The aircraft identification is always active in IvAp.

- **Mode C** or **Mode S** transponder with pressure altitude information



This representation is also valid for **P** mode. The aircraft identification is always active in IvAp.

1.1.2. Aircraft Identification with transponder

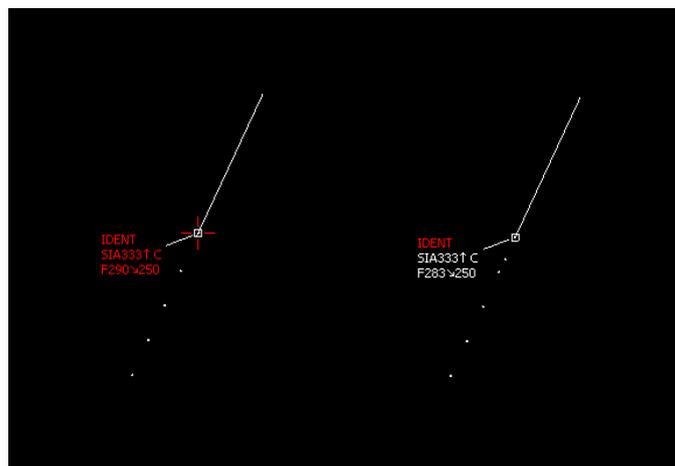
As an air traffic controller in a large zone, you may not easily locate an aircraft quickly.

In order to speed up identifying an aircraft location, the air traffic controller can use the IDENT procedure by giving a "transponder IDENT" or "squawk IDENT" command to the pilot.

When receiving a transponder IDENT request, a pilot will press the IDENT button on his instrument. When the radar equipment receives the IDENT, it results in the aircraft's blip blinking on the radar scope.

Note that IDENT should be performed on request of ATC only.

IDENT can also be used in case of a reported or suspected radio failure to determine if the failure is only one way and whether the pilot can still transmit or receive, e.g., "Air France 8542, if you read, squawk IDENT".



The figure shows the 2 aircraft states during the blinking IDENT on the radar screen

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