

# S1 GND – TRAINING HANDBOOK

## Ground Controller S1 Training Handbook

Integrated Training for Nassau FIR Controllers



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Note: For simulated flight and controller use only

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## INTRODUCTION

In the Nassau FIR, a new member will be allowed to control on MYNN\_DEL Delivery or MYNN\_GND Ground. To be able to control MYNN\_DEL Delivery or MYNN\_GND Ground, a trainee must have had minimum of one (1) Introductory session with an instructor or a mentor.

To obtain the S1 rating, trainee needs to pass the SWEATBOX Practical Session. It is important for a trainee not to fail this test, if he wishes to start controlling. Trainee will have to thoroughly work through all the problematic issues with the instructor before he/she can be assigned the S1 rating.

The S1 is the only rating in the Nassau FIR that does not require a Controller Practical Test (CPT). Instead of that, trainee will have several sessions with the instructor by using Sweatbox, the VRC simulator feature which employs instructor- controlled simulated traffic and trainee as “ATC”.

You will receive your S1 rating as soon as instructor decides that you are ready for the “real world” and as such, number of sessions and length of the entire process will vary depending on your progress.

## 1 Ratings in the VATCAR Division

1. Pilot/Observer
2. Student 1 (S1) - DEL/GND [\_DEL / \_GND]
3. Student 2 (S2) – TWR [\_TWR]
4. Student 3 (S3) - APP/DEP [\_APP / \_DEP]
5. Controller 1 (C1) – CTR [\_CTR / \_FSS]
6. Instructor 1 (I1) - Mentoring for the DEL/GND/TWR/APP/DEP/CTR ratings
7. Instructor 3 (I3) – Same as Instructor 1
8. Supervisor (SUP) - Same as Instructor 1
9. Administrator (ADM) - Same as Instructor 1

## 2 OBS to S1 (GND)

Vatsim controller rating S1 permits a member to control DEL (Delivery) and GND (Ground) positions. This is valid for all aerodromes within the Nassau Flight Information Region (Nassau FIR). After the completion of theory (written multiple choice) exam, member will start practical training at MYNN towards the S1 rating through mentoring sessions on SWEATBOX.

Assessment of theory knowledge is done via the VATCAR Training System. At this level, practical competency is continually assessed during mentoring sessions by approved mentors and S1 rating will be issued when the student achieves the required competency standard.

S1 rating is issued to a controller when he/she is competent in the following subject areas:

- 1) Radiotelephony (Refer [Radiotelephony Communications Handbook](#))
  - a) Phraseology and text communications
  - b) RT pace and clarity, monitoring pilot read backs
  - c) Communication priority
- 2) Coordination
  - a) Handoff procedures
  - b) Coordination with Tower for departures and VFR traffic
  - c) Coordination of non-standard practices
- 3) Planning
  - a) Aerodrome knowledge
  - b) Aerodrome chart reading
  - c) Data block, flight plan and departure listing
  - d) 3 or more aircraft workload management
- 4) Controlling
  - a) IFR departure clearances
  - b) VFR departure clearances
  - c) Taxi instructions, taxi routings and stand allocation

## 5) Safety

- a) Safe operating technique
- b) Order and expedition consistent with safety

## 6) Meteorology and altimetry (Refer [Metar Handbook](#))

- a) Basic METARs
- b) Runway selection
- c) Understanding of meteorological effects of aerodrome operations
- d) Understanding of QNH and QFE

## 7) ATC Systems

- a) Setup and operation of Vatsim ATC client software
- b) Text and voice ATIS



## 3 DEL Position

Clearance Delivery is a frequency used on the ground to provide initial clearance from ATC to aircraft before the take off.

The idea behind using a dedicated frequency for this is that it avoids tying up the ground control frequency (used for authorizing ground movement on taxiways) with sometimes long clearances and read backs.

Clearance Delivery is found at busy controlled airports. Pilots operating under Instrument Flight Rules will generally use it prior to each flight, and at airfields in class C or class B airspace it's used by VFR pilots as well since they will be contacting departure controller immediately after takeoff until clear of the controlled airspace.

At less busy Vatsim airports Clearance Delivery is covered by same controller working as Ground or Tower.

## 4 GND Position

Guiding the plane on the **Movement areas**; **Taxiways** and **Runways**, the **Gate** area is the **Non-movement Area** on an aerodrome, to the active runway is the responsibility of **Ground Control**. The Tower control ensures that the airplane departs/lands safely, guides it away from the active runway via taxiways and hands them to Ground Control. GND controller is NOT authorized to issue runway line up calls or allow aircraft to cross active runways.

The time it takes to reach the gate after the plane has landed depends on a lot of factors, primary being the traffic or the number of planes already on the ground moving around the airport either for a departure or heading towards a gate. The more the number of planes the longer it will take. The airport and taxiway layout also play a major role in how long the taxi times are. Airports with full length taxiways and less turns see aircraft reaching faster to the gate or runway holding point.

Guiding planes on the ground is as challenging as in the air. The planes have to remain on their taxiways and away from active runways. In the air, when two aircraft come close to each other, the TCAS (Traffic Collision Avoidance System) alerts the pilots and they can take heavy evasive action like diving, ascending, turning left or right to avoid the collision. The Ground Controller needs to ensure that such a situation never occurs, and he/she must keep the planes moving. Guiding the departing planes to the runways and arriving ones to their gates ensures that the airport stays efficiently operational.

### 4.1 Progressive Taxi

Precise taxi instructions given to a pilot unfamiliar with the airport or issued in stages as the aircraft proceeds along the taxi route. Progressive taxi instructions are issued on a step-by-step basis and are used:

1. When requested by the pilot (e.g. due to unfamiliarity with the aerodrome).
2. When deemed necessary by the air traffic controller.
3. In accordance with local conditions (e.g. during reduced visibility if so prescribed by the relevant manual).

### 4.2 Helicopter Traffic

Helicopter operations may be conducted from a runway, taxiway, portion of a landing strip, or any clear area which could be used as a landing site. ATC will issue takeoff clearances from movement areas other than active runways, or in diverse directions from active runways, with additional instructions, as necessary. Whenever possible, takeoff clearance will be issued in lieu of extended air taxi operations. Phraseology should be:

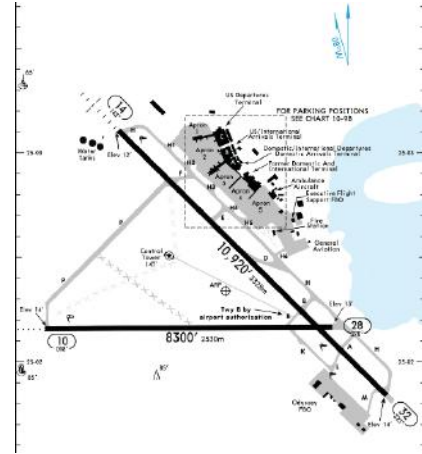
CLEARED FOR TAKEOFF FROM (taxiway, helipad, runway number, etc.) MAKE RIGHT/LEFT TURN FOR (direction, heading, NAVAID radial) DEPARTURE/DEPARTURE ROUTE (number, name, etc.)

**Air taxi** is the preferred method for helicopter ground movements on airports provided ground operations and conditions permit. Unless otherwise requested or instructed, pilots are expected to remain **below 100 feet AGL**. However, if a higher than normal airspeed or altitude is desired, the request should be made prior to lift-off. The pilot is solely responsible for selecting a safe airspeed for the altitude/operation being conducted.

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## 4.3 Before issuing flight plan clearance check and confirm following:

- Departure & Arrival airport ICAO codes.
- Aircraft type/equipment code
- Cruise altitude correct for direction of flight (east/west bound)
- Flight route confirms the regions published procedures
- Transponder code assigned
- Communication tag set (Voice / Text / Receive only)



## 4.4 Radar Client Visual Ranges

The VATSIM community relies on a network of computers interlinked to provide position updates to controllers and pilots alike. In an effort to avoid any wasting of bandwidth the following maximum ranges have been imposed.

Position	Range
DEL/GND	10 to 20 nm
TWR	30 to 50 nm
APP/DEP	100 to 150 nm
CTR	300 to 600 nm
FSS	1500 nm

Note: When a user logs on to VATSIM network, it is important that the visual range slider be set to the appropriate range.

## 4.5 Voice Readability

When calling a radio station, it is good to perform a radio-check to test the voice transmission and reception quality. For this purpose, a readability scale has been developed.

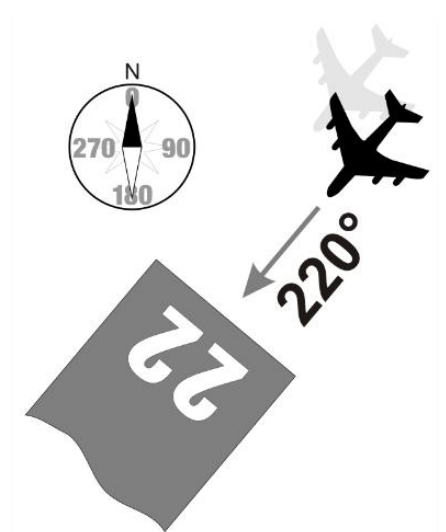
Readability Scale Definition:

**1 Unreadable**, **2 Readable now and then**, **3 Readable**, but with difficulty, **4 Readable**, **5 Perfectly readable** (loud and clear)

## 4.6 Runway Designators (numbers)

A runway is a strip used for take-off and landing. The runways are numbered according to the compass-direction they are headed, rounded off to the closest tenth degrees. A runway that has the "course" 180 degrees is hence named 18 and one with "course" 224 is named 22. Since runway is used both directions, it's named with the contra-course from the other side (18-36, 04-22, etc.).

Some airports have parallel runways, i.e. more than one runway that has the same number. They are named with the suffixes R (right), and L (left) after the number to tell them apart if they are two runways, and R, C (center) and L if there are three runways.



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## 4.7 ATS Airspace Classification

ATS airspace classification varies from region to region. General ATS airspace is classified and designated in accordance with the following:

**Class A.** IFR flights only are permitted, all flights are provided with air traffic control service and are separated from each other. No speed limits.

**Class B.** IFR and VFR flights are permitted, all flights are provided with air traffic control service and are separated from each other. No speed limits.

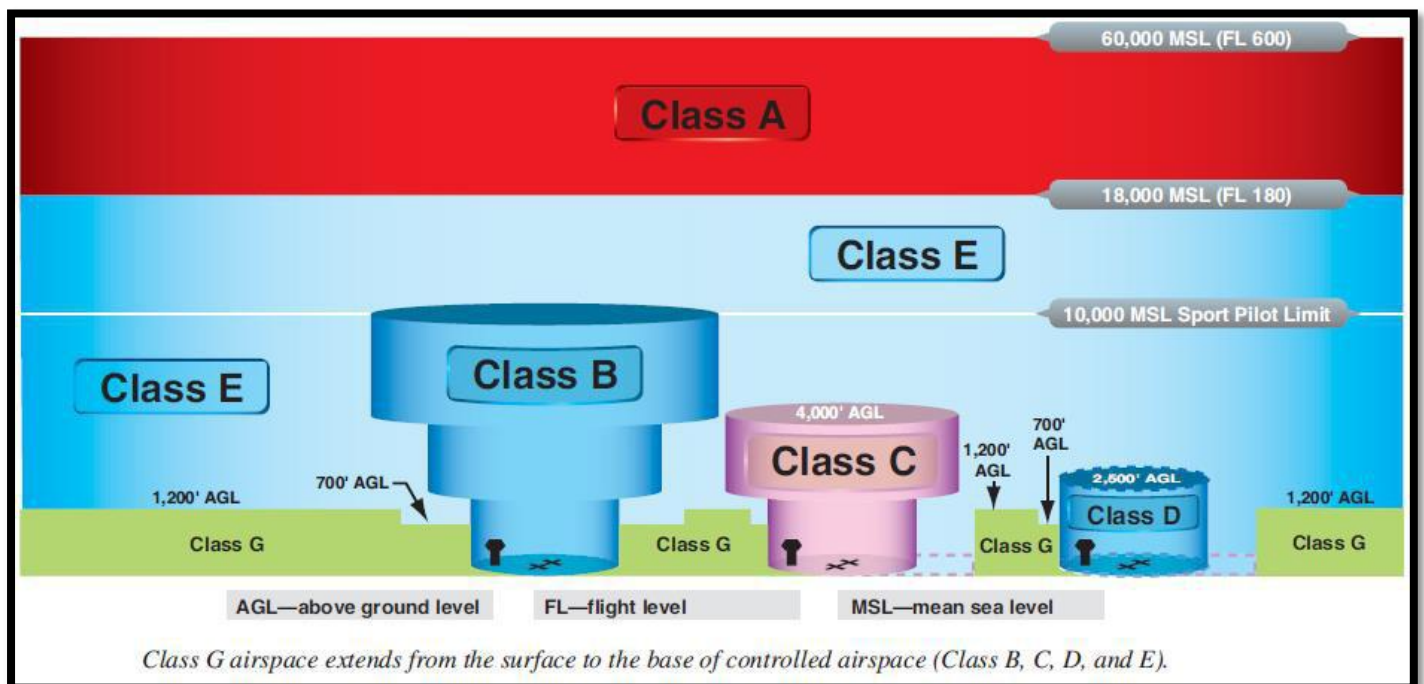
**Class C.** IFR and VFR flights are permitted, all flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights. Speed limit: IFR and VFR maximum indicated speed is 250 kts below 10000ft agl.

**Class D.** IFR and VFR flights are permitted and all flights are provided with air traffic control service, IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, VFR flights receive traffic information in respect of all other flights. Speed limit: IFR and VFR maximum indicated speed is 250 kts below 10000ft agl.

**Class E.** IFR and VFR flights are permitted, IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information as far as is practical. Class E shall not be used for control zones. Speed limit: IFR and VFR maximum indicated speed is 250 kts below 10000ft agl..

**Class F.** IFR and VFR flights are permitted, all IFR flights receive Air traffic advisory service and flight information service. VFR flights receive flight information service if requested. Speed limit: IFR and VFR maximum indicated speed is 250 kts below 10000ft agl.

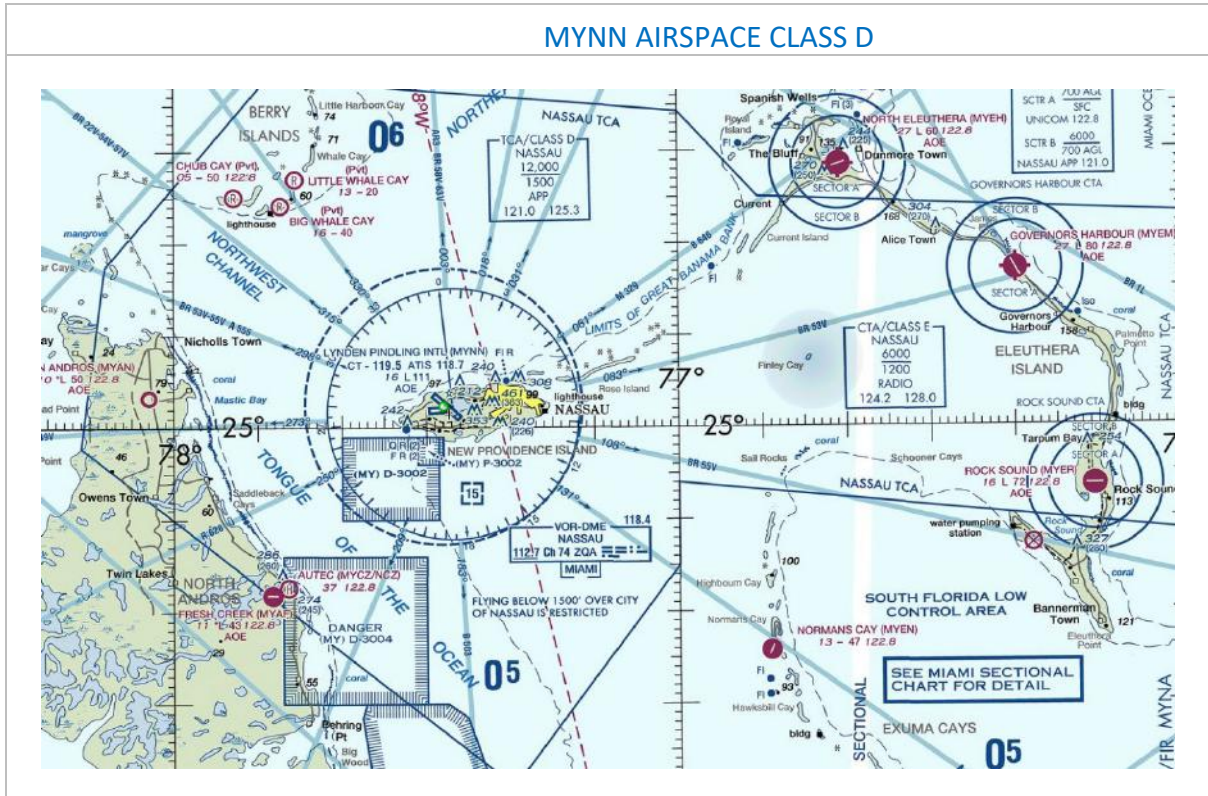
**Class G.** IFR and VFR flights are permitted and receive flight information service if requested. Speed limit: IFR and VFR maximum indicated speed is 250 kts below 10000ft agl.



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## 4.8 Transition Classification

- Transition Altitude. The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes. [Ex: MYNN Trans Alt – 18000’]
- Transition Level. The lowest flight level available for use above the transition altitude. [Ex: MYNN Trans Level-FL180]
- Transition Layer. The airspace between the transition altitude and the transition level.



## 4.9 SID & STAR Procedures

Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs) provide a safe and efficient way of prescribing a large amount of information through pre-published procedure design. Both depict the lateral profile of an instrument departure (SID) or arrival route (STAR) and the associated altitude and speed restrictions.

The use of SID/STAR phraseology brings significant benefits. It enables efficient and concise communication. It allows ATC to issue, and pilot to understand detailed clearance information that would otherwise require long and complex transmissions.

The core phraseologies are:

CLIMB VIA SID TO (level)

DESCEND VIA STAR TO (level)

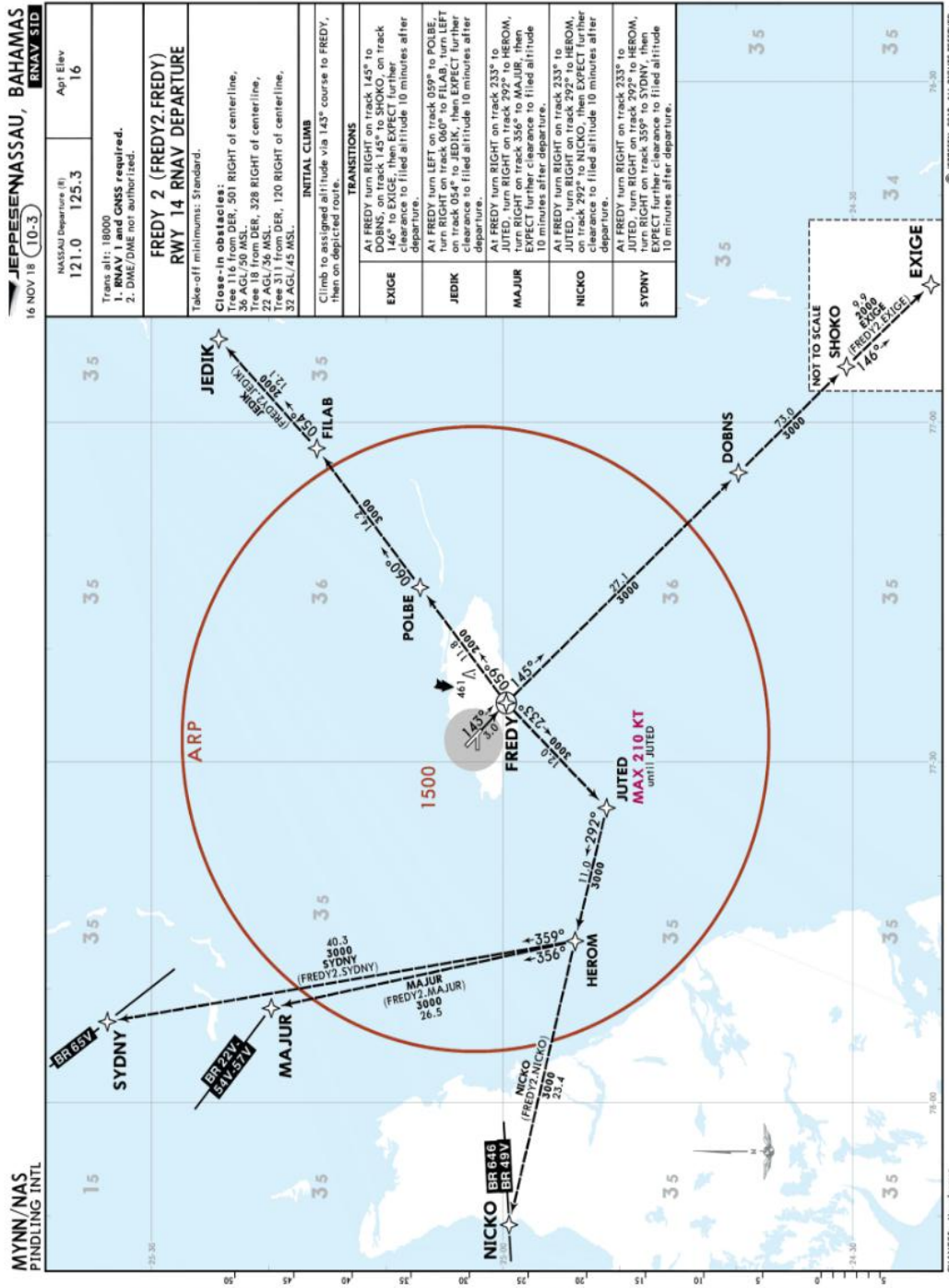
These require the aircraft to:

1. Climb/descend to the cleared level in accordance with published level restrictions
2. Follow the lateral profile of the procedure
3. Comply with published speed restrictions or ATC-issued speed control instructions as applicable.



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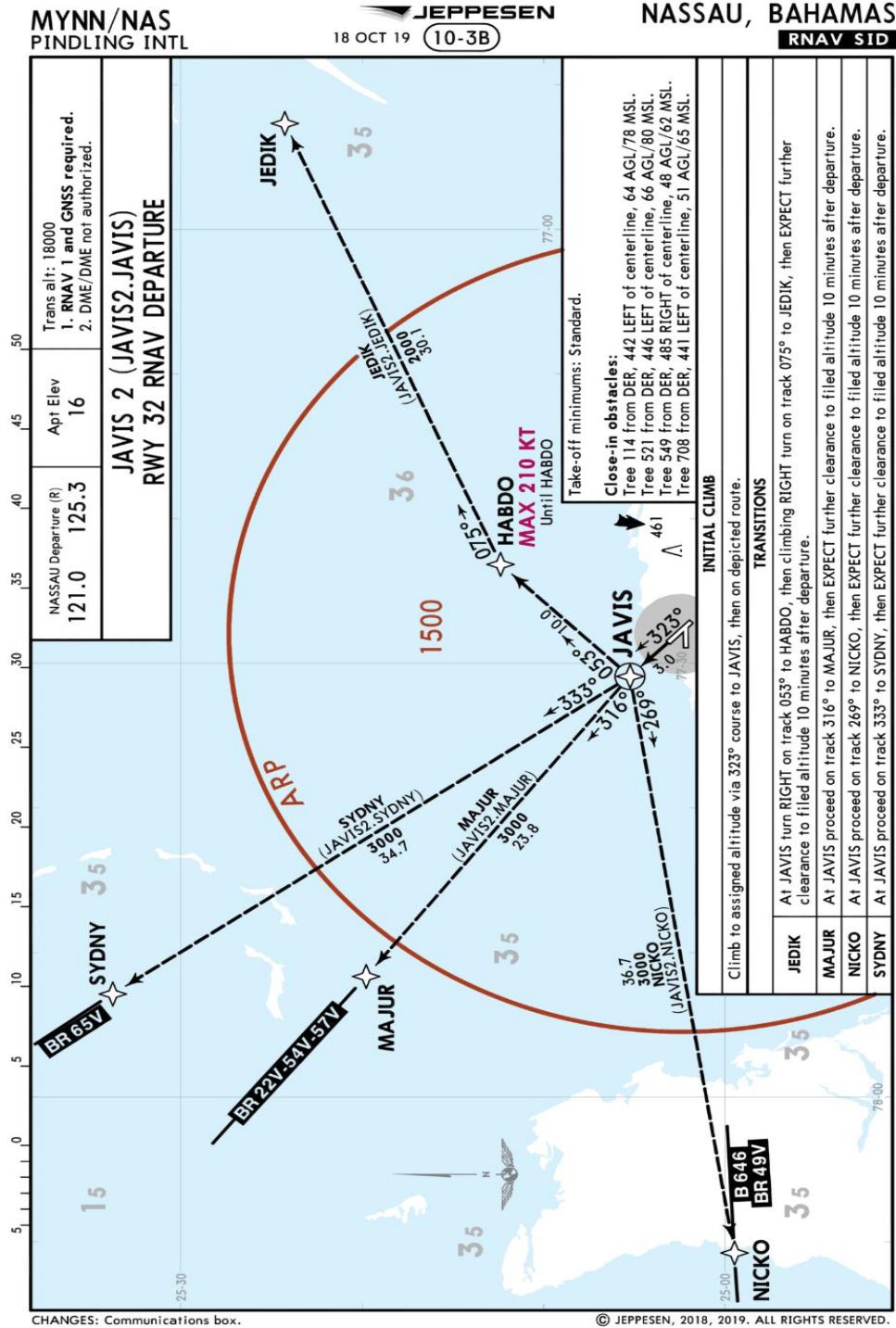
Example 1: SID chart of MYNN  
FREDY 2 RNAV DEP



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## Example 2: SID chart of MYNN

### JAVIS 2 RNAV DEP



Example 2: STAR chart of MYNN

**MYNN has no STAR chart**

## 5 Points on Avoiding Communication Errors

Communication error is a significant contributory factor in both misunderstandings and confusions in Vatsim. The following points will help to improve RTF standards in Vatsim airspace:

- a. Use standard phraseology at all times.
- b. Maintain RTF discipline - use clear and unambiguous phraseology at all times.
- c. Avoid unnecessary RTF.
- d. Both pilots and controller should monitor the active frequency.
- e. Do not read back a clearance as a **QUESTION** and avoid merely asking confirmatory questions. Much better to use '**Say Again.**'
- f. Ensure you pass all information relevant to the phase of flight. For example: On initial call to Departure, inform call sign, SID, passing level, cleared level or first step altitude.
- g. On frequency changes, wait and listen before transmitting.
- h. Take particular care when issued with a conditional clearance. When reading back a conditional clearance, make sure to state the condition first.
- i. Check RTF if there is a prolonged break in activity on the frequency.
- j. Set the clearance **given**, not the clearance **expected**.
- k. Note down ATC instructions / Pilot information when possible / as required.
- l. If unsure, always **check / Confirm / Clarify** – The 3 Cs.

## 6 Push and Start Procedure

### A Conditional Push Back Clearance

Conditional clearances expedite traffic flow, but it should avoid any ambiguity. Read-back must be in full and in the same sequence as given. A conditional push back clearance, (example below) allows push back after another action has first taken place (ie. the condition of the clearance). Where there may be ambiguity as to the subject of the condition, additional details such as airline and aircraft type are given to aid identification.

**Pilot-** Nassau Delivery, BHS102, Stand A14, ATR42 with information D, request IFR clearance to Freeport.

**MYNN DEL-** BHS102, Nassau Delivery, cleared to Freeport International Airport, via Radar Vectors to SYDNY the as filed, climb and maintain 3,000 (Jets 4,000), Expect 14,000, 10 mins after departure, Departure with Nassau Approach/Departure 121.00. Squawk 4315.

**Pilot-** cleared to Freeport International Airport, via Radar Vectors to SYDNY the as filed, climb and maintain 3,000, Expecting 14,000, 10 mins after departure, Departure with Nassau Approach 121.00. Squawking 4315.

**Pilot-** BHS102, request start up

**MYNN DEL-** BHS102, Push and start at pilot's discretion, contact MYNN\_Ground 121.70 for taxi.

**Pilot-** Push and start at pilots discretion, contacting MYNN\_Ground 121.70 for taxi, BHS102

**Pilot-** MYNN\_Ground, BHS102 Stand A14, ready for taxi

**MYNN\_GND-** BHS102, Nassau Ground, Runway 14 taxi via H.

**Pilot-** Runway 14 via H, BHS102

## 7 Taxi and Take-off Procedure

### Taxiing - A Safety Critical Activity

The use of standard phraseology is crucial to the safety of the flight during taxiing. Any mistake that causes the aircraft to enter a runway in error could be catastrophic.

### Taxi Clearance Limit

All taxi clearances will contain a clearance limit, which is the point at which the aircraft must stop unless further permission to proceed is given.

### Noting Down Taxi Clearances

Complex or lengthy taxi clearances should be noted down by Crews. Taxi Instructions 'To Hold Short Of' Departure Runway:

Pilot- MYNN Ground, BHS102, request taxi

MYNN GND- BHS102, MYNN Ground, Runway 14, taxi via H

Pilot- Runway 14 via Hotel, BHS102

MYNN GND- BHS102, contact MYNN  
Tower 119.50

Pilot - Contact MYNN Tower 119.5,  
BHS102

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Flight Plan - BHS205 (Name unknown) - Amended

1	Flight Plan - BHS205 (Name unknown) - Amended			
2	3	4	5	Amend Plan
6	7	8	9	Refresh Plan
10	11	12		Assign Squawk

1 Callsign: BHS205 2 A/C Type: B735/L 3 Flight Rules: IFR 4 Amend Plan

5 Depart: MYNN 6 Arrive: KFL 7 Alternate: KMCO 8 Refresh Plan

9 Cruise Alt: 22000 10 Scratchpad: 11 Squawk: 4612 12 Assign Squawk

Route: ZQA BR57V ZBV DEKAL4

Plot

Remarks: /N/

## 8 Flight Plan Description

**HEADER** – Flight Number and Name of the Vatsim Pilot.

**1 CALLSIGN** - Aircraft identification (Flight number or Registration) Aircraft is called using the call sign when giving instructions. Call sign is selected by pilot.

Example: BHS205- Bahamas two zero five.

**2 A/C TYPE** – Identity code of aircraft type and equipment code. Refer links below for more details.

a. ICAO aircraft codes: [icao.int/publications/DOC8643/Pages/Search.aspx](http://icao.int/publications/DOC8643/Pages/Search.aspx)

b. Equipment codes: [vatsim.net/pilot-resource-centre/general-lessons/choosing-equipment-code](http://vatsim.net/pilot-resource-centre/general-lessons/choosing-equipment-code)

**3 FLIGHT RULES** - Type of flight rules that the pilot will be flying.

There are three types of flight rules – **VFR** (Visual Flight Rules), **SVFR** (Special VFR) and **IFR** (Instrument Flight Rules)

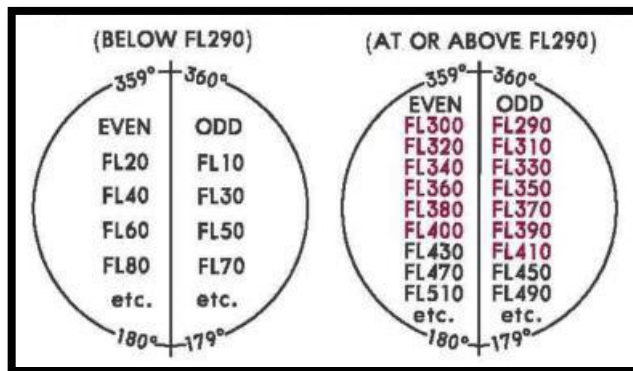
**5 DEPART** - **Departure** airport ICAO identifier.

**6 ARRIVE** - **Arrival** airport ICAO identifier.

**7 ALTERNATE** - **IFR** alternate airport for the aircraft destination (such as weather or an unusually long holding time). As with the origin and destination fields, this should have a valid ICAO identifier. IFR aircraft are **not** always required to have a filed alternate. It is acceptable to have "NONE" in the flight plan or blank.

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- 8 **CRUISE ALT** - Cruise altitude when aircraft in cruise flight level. Refer the chart below.
- 9 **ARRIVE** - Arrival airport ICAO identifier.
- 10 **ALTERNATE** - IFR alternate airport for the aircraft destination (such as weather or an unusually long holding time). As with the origin and destination fields, this should have a valid ICAO identifier. IFR aircraft are not always required to have a filed alternate. It is acceptable to have "NONE" in the flight plan or blank.
- 11 **CRUISE ALT** - Cruise altitude when aircraft in cruise flight level. Refer the chart below.



- 12 **SCRATCHPAD** – Your notes for ATC coordination.
- 13 **SQUAWK** - Squawk/transponder code that ATC issue to the pilot.

Squawk is the code to which pilot set the transponder. It transmits a 4-digit ID when queried by air traffic control radar (so-called "secondary radar"), so the controller can identify the aircraft easily. Transponder is always has a 4-digit display, an off/standby/on switch, and some means of entering the squawk code.

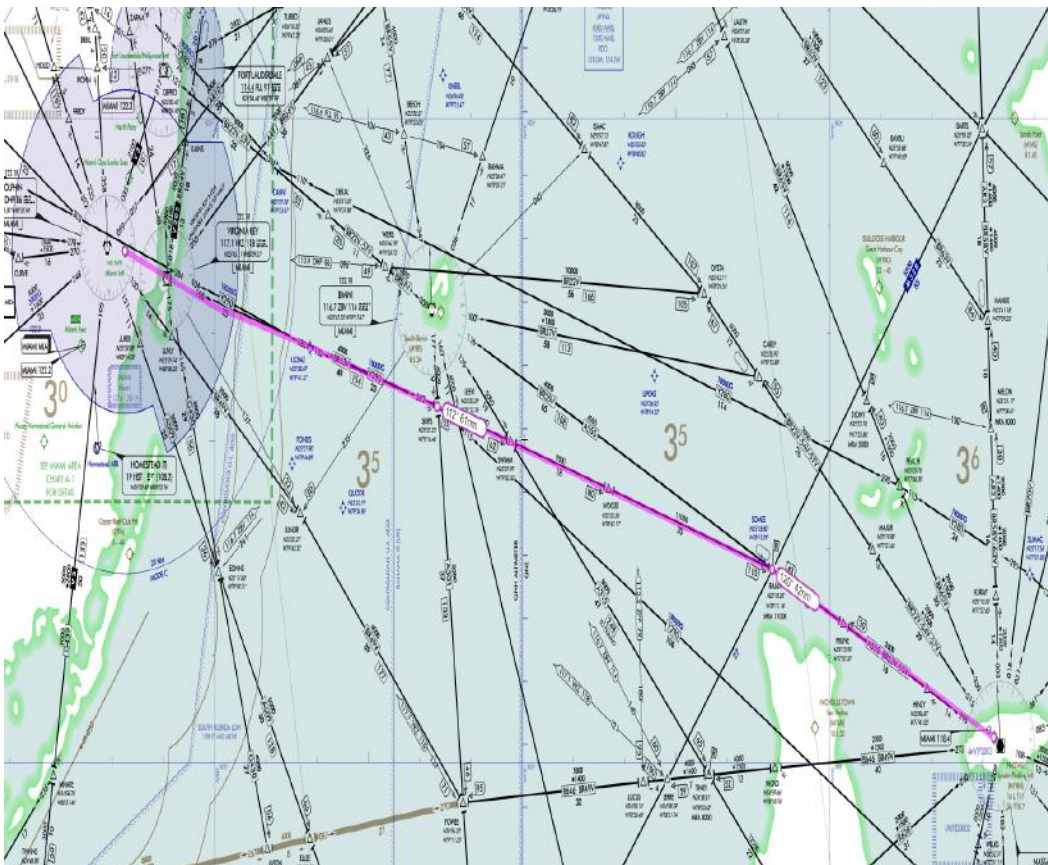
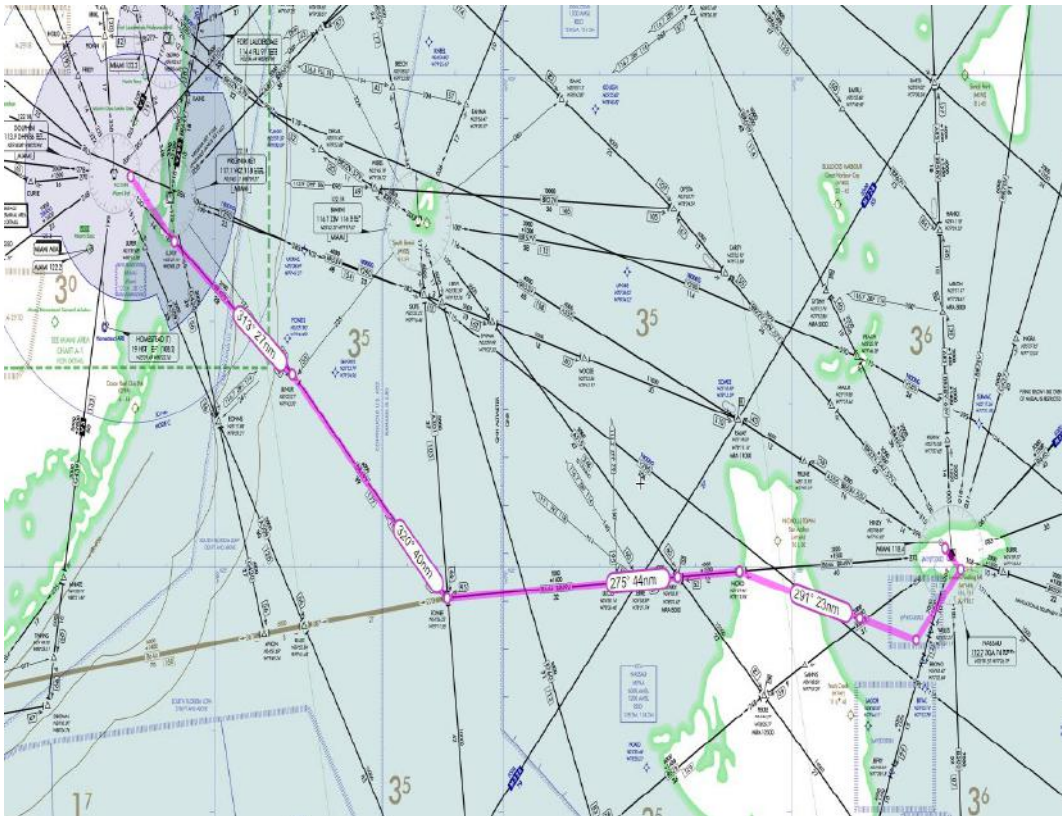
Real transponders have different modes, such as A (only squawk code), C (squawk plus pressure altitude) and S (squawk, pressure altitude, a unique 24bit ID associated with the aircraft, and some other advanced features for traffic avoidance). Transponder codes do not use digits 8 or 9. In VATCAR Nassau FIR squawk codes are assigned from blocks allotted to each FIR. All aircraft should have a valid squawk code when clearance is given.

- 14 **ROUTE** - Route the aircraft is using from Departure airport to Arrival airport. It is important that this route corresponds with any local Nassau FIR Standards Operating Procedures (SOPs) and Letters of Agreements (LOAs).



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Example 3: En-route chart between MYNN-KMIA-MYNN



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Routes between Nassau (MYNN) and Miami (KMIA) are identical in both directions.

1. ZQA BR49V TINKY FLIPR7
2. SKIPS2 SKIPS BR63V RAJAY \*\*\*\*SEE EXAMPLE ABOVE\*\*\*\*

Routes between Nassau (MYNN) and Ft. Lauderdale (KFL) are not identical in both directions.

1. ZQA BR57V ZBV WAVUN5
2. BEECH5 BAHMA RAJAY

Sometimes a pilot can file route as GPS DIRECT.

*Note: GPS routes and tracks are sets of GPS information designed to help aircraft navigation. GPS Routes are pre-defined paths created from a group of longitude/latitude location points entered into the GPS receiver in the sequence to navigate them.*

If possible, the controller can inform the correct flight plan route to the pilot and ask the pilot if he/she can accept it. Due consideration must be given to the fact that various Vatsim users are having different capabilities.

You can find commonly available routes at the following sites:

[simbrief.com/home/](http://simbrief.com/home/)

[skyvector.com/](http://skyvector.com/)

**REMARKS** – Records additional remarks that the pilot has filed, such as expanded call sign, weather client, and other miscellaneous information. It is not compulsory to have remarks. Following may be added as required.

/V/ - both voice receive and transmit

/R/ - receive voice, but will transmit via text

/T/ - both receive and transmit using text

End of document |

PLEASE REFER VATCAR NASSAU FIR TO GET LATEST REVISION OF THIS DOCUMENT OR CONTACT THE TRAINING ADMINISTRATOR FOR MORE INFORMATION